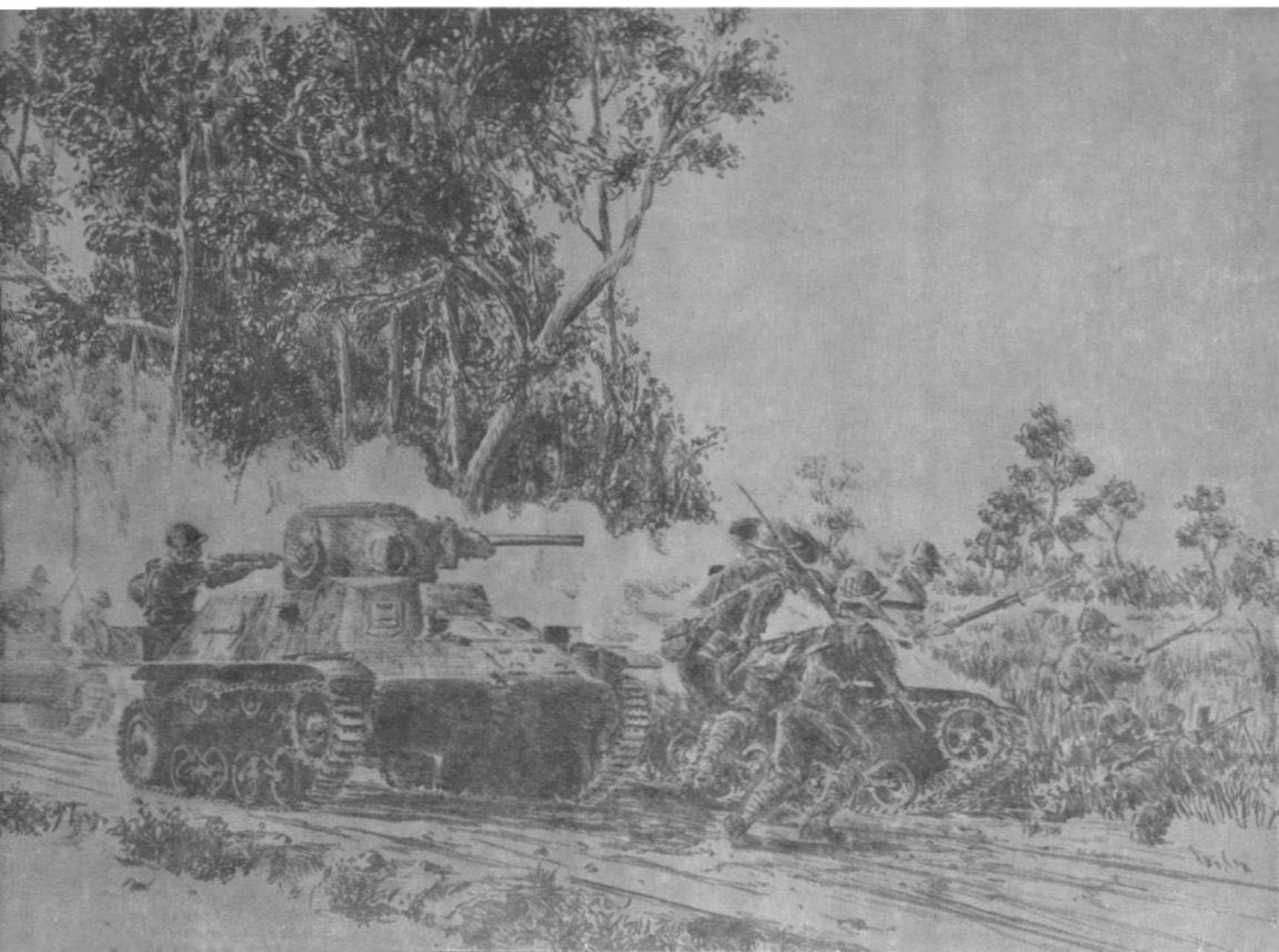




A MAGAZINE FOR ARMOR ENTHUSIASTS
Volume 2 Number 10 January 1971



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PAGE	ARTICLE TITLE	AUTHOR
4	That U.S. 6-Ton Tank	Col. G. B. Jarrett
7	Desert Spigot	Bill Platz
8	Color 'n Camouflage: U.S. M-7 "Priest"	Don Golde
10	Wargame Review: Schizophrenic Wargaming	Lonnie L. Gill
12	Karl der Grosse	Steve Cobb
14	Baron's Corner: Care and Feeding an Air Brush	Norb Meyer
15	On the Road to Singapore	John Yonos
17	Wargame Conversions: SU-100	Jim Garrison
18	Beware, the Mammoth Hummingbird	Bill Platz
19	Marmon Herrington Armoured Car Mk.II, Three-view Drawings	S. R. Cobb
20	The 7.62cm Pak (r) German-Russian AT Gun	Kurt Fischer
22	Product Review: Panzerblitz	Carl Weaver
23	Chongju Roadblock	Lonnie Gill
24	The Soviet BT-7	Carl Dembrowski
25	Soviet BT-7, Three-view Drawings	Jim Steuard
26	British Tank Squadron, 1942	Bill Platz
27	Organization Chart - Grant Tank Squadron	Jim Steuard
28	Battle Problem: Operation Mundy	Mike Reese

COVER: Malaya December, 1941. Japanese tanks and infantry drive south towards the fortress of Singapore. An incident on the roadway is captured in our pen and ink cover drawing by Bruce Weigle of San Diego, Calif.

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The AFV-G2 is a magazine, published monthly, for Armor Enthusiasts, with the purpose of gathering and disseminating information about Armored Fighting Vehicles and their employment; to provide an opportunity for persons seriously interested in the History of Armored Fighting Vehicles, in the modeling of these AFV's and associated equipment, and in the playing of military Wargames utilizing miniature AFV's, to share ideas and items of mutual interest, and to promote an interest and awareness in the subject of AFV's.

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'That U.S. 6-Ton Tank'

by Col. G. B. Jarrett, USAR Retd.

I read with enjoyment recently the account of a U.S. World War I 6-ton tank written by a friend of mine, Konrad Schreier, in "Armor" Magazine. The topic has a personal angle because at one time I owned just such a tank, being undoubtedly the first United States citizen to do so. I also operated this tank as a show piece. My father-in-law permitted me to maintain a very large collection of ordnance on his farm in New Jersey which I displayed and demonstrated for visitors. That tank was close to my heart, and I would run it at the drop of a hat.

I think I should say at the start that I got the tank legally. It is now far more than 50 years since I started collecting ordnance and other types of war materials. After World War I, I received gifts of ordnance from France, England, and the United States War Department; and, in 1936, I arranged through the Ordnance Department for the donation of a U.S. 6-ton tank from stocks then maintained at Fort Meade, Maryland. This was permitted under Public Law which provided for donations of war materials to museums, legion posts, municipalities, etc. Any such material, of course, had to be made inoperable.

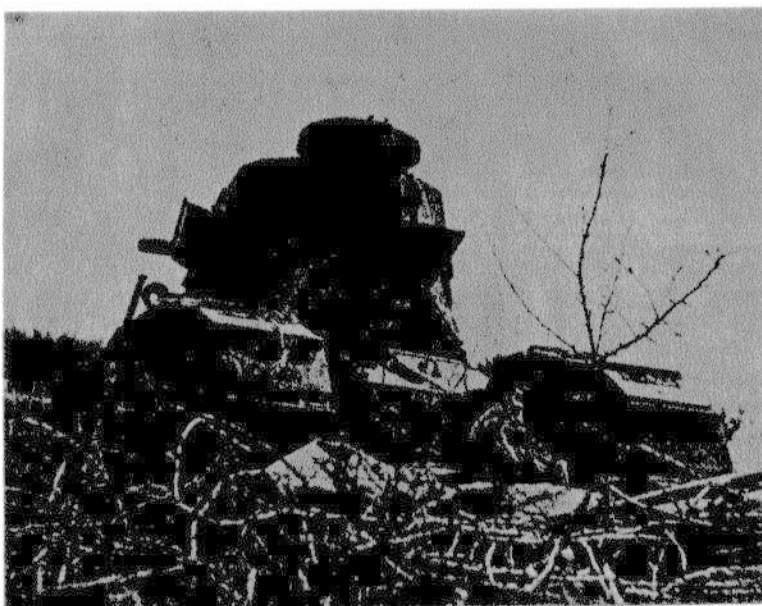
I went to Fort Meade to see the Ordnance Officer there to learn what I would need to move the tank. It weighed 6 tons, and was 16 feet long, 5 foot 10 1/2 inches wide, and 7 foot 7 inches high. This latter was of some concern to me since there was a bad underpass to negotiate near Northeast, Maryland. Our super highways, as we know them today, were conspicuous by their absence. Further, there was the ferry at New Castle to cross from Delaware into New Jersey. However, I had made arrangements with the authorities at Fort Meade to hold the tank until I could get a suitable truck for the job.

In Morestown, near the farm, I knew of a young man who operated a large truck in the bulk coal hauling business. He was on a self-imposed schedule and readily agreed to go after my tank. The truck was quite long and rated for 15 ton loads. The width of the tank was a problem, however, since it would sit astride the truck chassis members and cause bowing of the bed. If it gave way, the tank would squeeze down over the truck frame and we would have real trouble. To avoid this, I bought four 18 foot 2 x 12 oak planks on which to place the tank in order to distribute the weight of this concentrated load. The trucker was to receive \$25.00 for the job, plus his gas and ferry tolls.

The truck and load, in fact, was just long enough to require an extra fee on the ferry, but it was a cheap price for the job. So off we went to Fort Meade after the tank, starting early so that we might arrive in time for the opening of their day.

The problem of deactivation then became my worry as, of course, I hoped to one day make the tank run again. At that time a few other tanks had been presented to veteran posts or municipalities and there was a set procedure to make them inoperable.

The tank was winched onto our truck and choked in place; then the radiator and crankcase were drained. A large hole was punched into the crankcase, and the engine was started up and run at full throttle. The idea, of course, was to score the cyl-



inders, as without oil and water for cooling, the engine would seize up. I stood there almost with tears in my eyes to see this destruction, necessary and required as it was, and desperately wondered what I might later do about it.

Prior to loading the tank at Fort Meade, I had talked with an old Ordnance Sergeant who said that he knew the tank well. It had been one of the better tanks and had been run many times for demonstration - so much so, that it had been rebuilt twice; the last time having its Buda engine re-bored. In this case, of course, they had installed over-sized rings. The Buda engine, when new, had started out with a 5-inch bore...evidently.

He also said that the gears had been in good shape until recently, but that one gear gave some trouble. There were no replacement parts available for these tanks. The clutch-brake steering was okay, but he said that likely the motor clutch would be frozen. This cone clutch had a habit of sticking if not exercised frequently. Since the tank had not been run for some time, this was a good possibility. He told me that as regular maintenance they made up a section of wooden 2 x 4 which they jammed between the forward edge of the driver's seat and the clutch pedal. This kept the clutch disengaged when not in use. Thus I could see that I had a bag full of problems at hand.

As matters turned out, we had no trouble hauling that tank to Moorestown. The underpass was high enough and the ferry, no trouble. I had lots of questions to answer - imagine anyone moving a tank! When we reached the farm, there was a fairly high bank beside the road past the farm house. We backed into the ditch, which lowered our rear end so that we could hitch up the farm tractor and pull the tank off. I recall that it rolled off on its tracks in fine style, landing with no trouble. My work was then just about to begin.

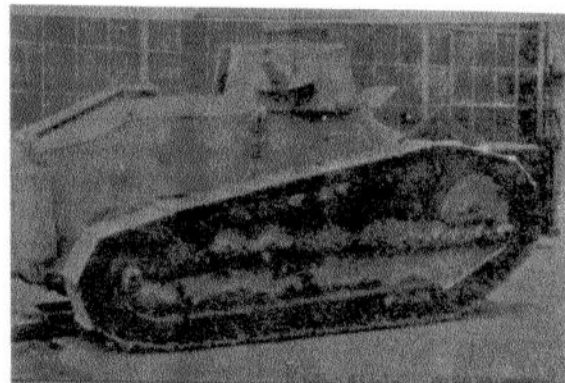
I had a good friend, Stuart Shepherd, who was a master mechanic and could do welding as well as make any engine run. However, this type of tank was known as "the hard-work tank" at Fort Meade. The engine was mounted well down behind the rear armor plates and a three-piece sloping lid fitted down over it. The radiator was in mid-section and the engine aft of that. Thus, to work on the engine, even to merely adjust the carburator or magneto, meant one had to reach deep down and over the edge of the rear armor plate. This plate bit into the ribs or stomach and was both painful and tiring. To take out the engine meant removing the rear plates to get at the bed bolts. We didn't want to have to do that, so we worked from the top despite the discomfort.

Stu bought a used 6-cylinder Pontiac carburator and figured its capacity would provide the requirements for the 4-cylinder magneto; it worked very well. We then tore the engine apart and removed the cylinders before rebuilding.

The fuel system was a vacuum design, which sucked the gas into a small tank and then by gravity to the carburator. We were never able to get it to work properly, and finally discarded it entirely. We built a one gallon capacity tank, which fed by gravity. This provided enough gas for a run and it could always be refitted easily. I never found myself so fortunate on gas consumption as Schreier claimed - that tank drank gas like a drunken sailor takes to whiskey. It used to take a gallon of gas to get once and a half around the farmhouse - which might have been 800-900 yards total distance. The hole in the crankcase we plugged by a rag soaked in permagasket, which worked very well after drying. The radiator leaked some and, of course, we had to fill it often when being operated, but usually filling lasted long enough for the time needed for a show.

After many adjustments, the engine ran again and amazingly well - especially after the dreadful treatment it had received. It never started easily and required determination by the "cranker." Cranking it was a chore and exhausting work. Besides, on occasion, it would kick; and I was always afraid of a broken wrist. But I remembered the days of the Model T's, and knew how to place my thumb to avoid that possibility. There was no self-starter.

Then we caught up with the clutch headache. This, for a time, looked as though it might kill

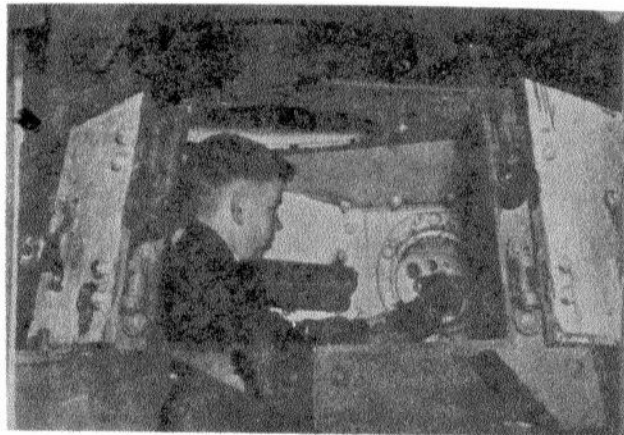


the whole project. Stu was resourceful and devised a tiny brass tube to which we soldered a funnel. He managed to work this tube into the clutch housing, while, from above, I dripped coal oil. Believe it or not, after a while, it freed the clutch. Then, of course, a good working cone clutch doesn't function well with an oiled surface such as we had just created. Stu managed to get the housing opened enough to get it dried out and saturated with Fullers Earth which made the slippery surface take hold. The clutch worked once more and at long last we were in business.

Next came teaching myself how to operate the tank. I learned to drive it the hard way! On one occasion, I decided to cross a small creek on the farm with sides about two feet deep. The creek bed was fairly wide, and it was this that saved the day, because I could easily have gotten stuck. I soon found out that if the driver eased the clutch on any sort of grade or over obstacles, the tank performed surprisingly well. Wide open, downhill, in a "power drive", it maybe reached a speed of 5mph. I know of nothing I ever operated which gave me the solid enjoyment I got from running that tank.

The tank had been designed with a tail skid, which helped it when crossing a ditch, especially if climbing out of a trench too wide to bridge directly. This device was attached to the top and bottom of the rear armor plate. The bottom had a pin which acted as a hinge pin, while the top was secured by use of wing nuts. The top could be released by removal of the wing nuts, so that the skid might be dropped to the ground, hinged on this lower pin. This was necessary in order to crank the engine. However, this skid was dreadfully heavy and took two men to replace into position, after cranking. I couldn't see trying to cope with this, so removed it entirely. Doing so, however, deprived the tank of one of its readily identifiable features.

These U. S. tanks had been designed to take either a Marlin machine gun or the 37mm infantry gun, modified for tank installation. So I decided that, since operating a machine gun with blank ammunition presented quite a problem for me, I would convert an old 45-70 carbine I had and fire it as a 37mm gun. The blanks for this carbine made a lot of noise and a puff of smoke (black powder loaded). While the white puff was really incorrect, it always provided a nice "bang" for any occasion when I had guests on hand. It was always a noisy tank as the tank shoes clanked and could be heard a long ways off. The engine made a big noise too, and when the cannon was fired, the effect was complete.



The summer of 1939, Paramount Pictures who made a monthly release known as "UNUSUAL OCCUPATION", asked me if I would stage a show for them and sent their camera team in August. I realized that this was a grand opportunity and spent 3 weeks getting ready for them. The tank was the "main spring" of the film which was released that fall, just as the war started in Europe. Then I was called to active duty.

Since I was to be gone for an indefinite time, I removed the carburetor and magneto from the tank and after taking out the spark plugs, I filled the cylinders with heavy oil. Then off I went. I didn't get a chance to "play" with my pet tank again for 6 years.

Eventually I got off active military status and maintained the same job at Aberdeen Proving Grounds, but in a civilian capacity. I was in charge of the Army's Ordnance Museum. I bought a place outside of Aberdeen town which I called "Great Oaks", and began to move my personal collection from Moorestown. This move was a very project as it weighed in total over 70 tons, and I had many large and difficult pieces to move. It had to be a gradual project. When the Army Ordnance Association (later the American Ordnance Association) held its first annual Ordnance Day after the war, we needed a World War I U. S. 6-ton tank for this show. So I offered mine and was delighted that a transporter could be sent to get it and have the tank tuned up that it might run properly. It put on a good show that day and several weeks later the boys brought it over to the side yard of Great Oaks. I always got a kick out of looking out of the window and seeing it. It was about 100 yards from the road, but lots of people saw it and it was always a topic of conversation.

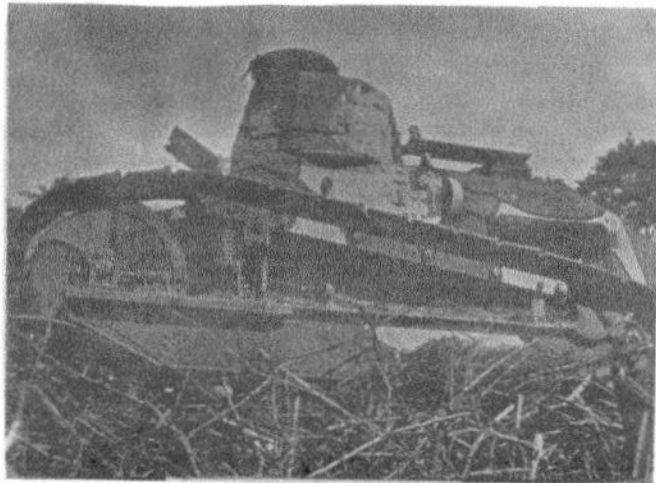
The tank had not improved with age, however, and we actually had been lucky to get it operational at all. There were no replacement parts available anywhere. While the clutch worked well enough, another of the gears gave trouble and I knew that its days were numbered. I filmed it one day in 1952 and at the time had a lot of trouble making it run - I think that was the last time it did.

In 1949, with reluctance, I had decided to part with my personal collection of Ordnance, since after World War II, the cost of maintenance was a big factor but, the worst part was lack of time to devoted to it even though I enjoyed such work. Through all this disposal, I kept the tank until the bitter end. I was torn between the idea of giving it to the Ordnance Museum at Aberdeen and disposing of it. Unfortunately, the weight of the 6 tons made it a difficult parcel in which to interest anyone.

So far as the Museum at Aberdeen was concerned, I felt it foolish to turn it over to them because we were in the midst of a salvage drive of the Museum pieces; directed by the Chief of Ordnance. It could have easily been cut up for scrap, as were several thousand tons of rare items from the Museum.

At the moment the tank is in its third home since it left me. The first owner sought only to resell at a profit which he got; the second one wanted to make it run again and while he did, maintenance and costs plus hard work soon made him loose interest as he already had considerable expense invested in it. Finally, he sold it to my friend, Cole Palen, who operates an extraordinary establishment at Rheinbeck, New York - a World War I Aerodome. During the better months of the year he flies vintage aircraft for the huge enjoyment of visitors who throng the place. He wanted the tank for a sentinel at his entrance. It now sits there in all its glory. Cole has a touch for engines and machinery - so he tried his hand at getting the tank to run once more and did. It is in poor shape, however, and needs a new engine. Since the original Buda was basically a marine engine, he is currently seeing what might be found among such engines from the nearby shipyards. He appreciates that tank, and I know full well that one day it will run for Cole Palen, and for the enjoyment of his visitors.

I am glad that it is with Cole; it will be cared for. I feel sure that no other World War I tank has been operated, cared for and generally "loved" as that tank has been. Even though I no longer have it, I console myself that once it was mine.



THE DESERT SPIGOT

by Bill Platz

In mid June 1942, a number of unusual packing crates made their way through the supply system of the 8th Army and finally found themselves in the fortress of Tobruk. Although quite insignificant in appearance, they contained the great hope of British infantry formations hard pressed by German armour - a weapon that could be carried and fired by a single man yet capable of dealing with the dreaded Panzers. This device was called a spigot mortar and was a direct descendant of the union of the standard infantry mortar and a Chinese sky rocket. It fired a shaped-charged projectile to a maximum range of about 100 yards in the general direction of the target. Unfortunately the weapon was at least as dangerous to the man firing it as to the intended victim.

On June 20th, when the Afrika Korps launched its main assault on the Tobruk perimeter, a number of the "spigots" had been issued to the defenders as a replacement for the captured Italian Anti Tank guns. As the German tanks approached the Subedar-Major of 2/7th Gurka Infantry Battalion, with the help of the instruction manual, hastily assembled the unusual contraption he had just received. The old projectile was fitted onto the spigot, which resembled "a blunt marline spike", and then fired. The result surprised everyone. The explosive canister bounced and slithered across the ground toward the German machine, leaving a trail of dust and smoke to mark its passage, and then exploded some distance from its target. However, that was enough for the enemy tankers who wanted no part of such goings-on and beat a hasty retreat although no damage had been done. For the rest of the day Subedar Marasindu kept the Axis armour at bay with his fireworks display.

Color Camouflage

The M7 Priest

by Don Golde

The M7 was the standard equipment of the field artillery battalions of the American armored divisions during the Second World War. It was produced by putting a 105mm howitzer on a modified chassis of the M3 medium tank, thus giving the armored divisions a self-propelled artillery piece that could support them no matter how fast the pace that might be set in an advance.

There were two basic types, the M7 and the M7B1. The M7 was based on the chassis of the M3 medium tank having the three-piece bolt-on differential housing and having the return rollers mounted centrally over the bogie brackets. The later versions of the M7 had the one-piece case nose and trailing return rollers. The other type was the M7B1, which was based on the chassis of the M4A3. The major differences were the engines and the fact that the M7B1 started with the one-piece cast nose and M4 type bogies with trailing return rollers. The production of the M7B1 started in March, 1944; both vehicles were being produced at the same time, right up until the end of the war. Many more of the M7's were produced than M7B1's.

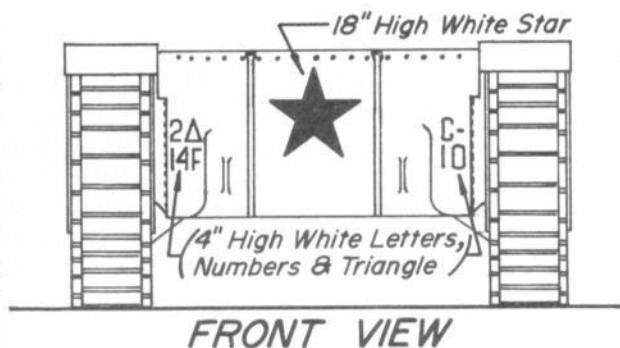
The subject of this month's Color & Camouflage was part of the Second Armored Division while training in England, prior to the invasion of Europe. The vehicle was photographed during a "Salute to the Soldier" parade, March 30th, 1944. The Second Armored Division held a daily parade to retain the snap and polish which had made it the "show outfit" at Fort Benning. Parades also showed the English that America was sharing the war effort; this was especially true of the "Salute to the Soldier" parade. As they passed through London, the Second Armored and the other units in this parade were inspected by a large crowd of citizens and the ever numerous officials.

Our vehicle was an M7 with the three-piece bolt-on nose and has the return rollers centrally-mounted on the bogies. The tracks are the smooth rubber block type which are found on many of the vehicles based on either the M3 or M4 chassis. This vehicle belonged to the Fourteenth Field Artillery Battalion, Battery "C".

The markings on the vehicle's right side contain the vehicle chassis number. This number is found on the forward part of the right side below the pulpit-like position in which the anti-aircraft MG was mounted. The chassis number is U.S.A. 4039366, with the numbers being four inches in height and one inch above the hull bottom. Three inches above the chassis number is a star with a height of 12 inches. To the right of the star, about half the distance down from the top and over about six inches, is the name of this particular vehicle, "China Clipper", in two or three-inch high letters. All vehicles in "C" battery were named with some word starting with the letter "C". The left side of the vehicle is similarly marked.

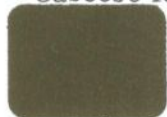
On the front of the vehicle, right in the middle of the three-piece nose is an 18" high star larger than the stars on the sides. To the left as you face the vehicles are the numbers, letters, and symbols identifying the division and the battalion to which this M7 belongs. The I.D. numbers are four inches high. The identification signs from left to right read two, followed by a triangle meaning that

this vehicle is in the Second Armored Division. Then underneath is the battalion number, fourteen and the letter "F" meaning that this is a field artillery battalion. On the right (again as you face the vehicle) front in a similar location as on the left, is the letter "C" meaning battery "C" of the battalion. Beneath the battery letter is the number of the vehicle in the battalion, ten. When all of these numbers, letters, and symbols are put together, they read Second Armored Division, Fourteenth Field Artillery Battalion, Battery "C", vehicle number ten.



U.S. OLIVE DRAB WW II

- 3pts Floquil RR 13
- Grimy Black
- 2pts Floquil RR 31
- Reefer Yellow
- 1 pt Floquil DH 10
- Caboose Red



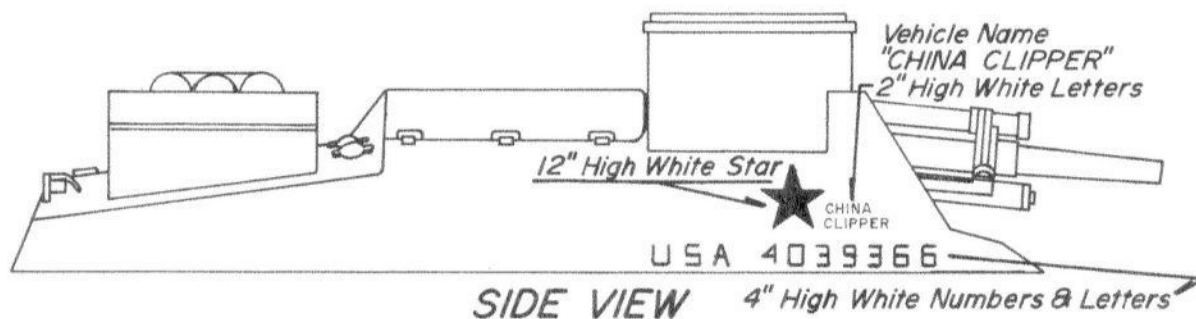
This vehicle was equipped with the usual equipment found on the M7. There was a fifty-caliber machine gun mounted in the pulpit-like position which lead the British to call the M7 the "Priest". This gun could be used to engage either ground targets or aircraft. On the left front of the vehicle there were brackets for holding spare track sections. On the right front, there was only one bracket instead of two as on the other side. This one was quite a bit smaller than the others and, on our vehicle, did not contain any spare track. There was a towing cable going from the right-front (the vehicle's right) towing hook along the vehicle's left side to the rear. This vehicle was not equipped with the dust fenders that were often found on both the M7 and the M7B1.

It should be noted that when painting a model of this vehicle, the olive drab color was not weathered as would a combat vehicle when it is in extensive use. This vehicle and others like it in England were kept extremely clean; and besides, this M7 was in a parade and ready to be inspected by some top official. Also, the tracks were in excellent condition showing very little wear. When modeling this particular vehicle, keep these tips in mind.

The armored field artillery battalion was created so that armored divisions would have artillery when and where they need them. These battalions were equipped with M7's and M7B1's until they were replaced by the M37 after the war. The armored divisions had three battalions of armored field artillery; each battalion consisted of 18 M7's which in turn were organized into three batteries lettered "A", "B", and "C". Each of the batteries contained six M7's. As was noted earlier, our M7 was numbered the tenth vehicle in the battalion, but was in battery "C". If the numbering system were done consecutively in order, battery "A" would have vehicles numbered one through six, battery "B" seven through twelve, and battery "C" thirteen through eighteen. But as is shown by our vehicle, this sort of logic in the numbering system did not always hold true for a number of different reasons. The battalions and their batteries were quite versatile and could be tailored to fit many needs; they could be attached to other units in the division in many ways. Because of this and the fact that all other units within an armored division were similarly flexible, the American armored division was one of the most versatile fighting units to be found in World War II.

The Second Armored Division had two other field artillery battalions besides the Fourteenth; these were the Seventy-Eighth and the Ninety-Second. So it is possible, using the same type of symbols in a similar manner as above, to construct any of the fifty-four M7's in the Second Armored Division at this time.

The M7 was considered to be an excellent weapon and was used through the war by both



American and British units. The M7's only problem was that it was such a light gun for such a large chassis. As the war was ending, it was replaced by the M37 based on the chassis of the M24 light tank.

While there is not yet a model produced of the M7, it is relatively easy conversion from either the chassis of the M3 or the M4. Conversion articles can be found in Airfix for 1/76 scale and IPMS (Bruce Culver) for 1/32 scale.

Now Available: 1:32 scale drawings from AFV-G2. The following three-view drawings are available at 15¢ each.

German: Hanomag Sd.Kfz.251/10
Hanomag Sd.Kfz.251/17
Aufklärungspanzer 38(t)

US: M-10 Tank Destroyer
M-18 Tank Destroyer 'Hellcat'
M-3 Stuart Light Tank

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Wargame Review

Schizophrenic Wargaming

by Lonnie L. Gill

Wargaming is war in miniature and as such should embrace all of its aspects. Most wargames, however, are involved only with tactics. Seldom can more than a battalion or two be engaged without the game becoming so long and drawn out that it is tedious. On the other hand, if the game is restricted to a few companies per side, each minor skirmish is played for total victory. The game tends to last until only one tank remains, far beyond the point where one side or the other has really won. In addition, each game must be carefully planned so that both sides have an "even" chance to win. When such an "even" game is played by skillful opponents, it usually takes many turns before victory is apparent. More realistic and enjoyable wargames are possible if they are made part of a larger canvas encompassing strategy and larger over-all units.

This can be done by wargaming on two levels, using the Avalon-Hill battle games as a campaign and resolving the resulting battles on the wargame board. Nothing new in that, you are probably thinking; someone in your wargame group no doubt had the same idea a long time ago. Well, the concept is not new, but many relationships must be carefully constructed before this system becomes both realistic and playable. Thus, a new set of rules is needed to make it a success.

I'll illustrate the concept by using the A-H Afrika-Korps game. The desert campaigns provide quick wargames-designed primarily for the armor enthusiast-in which both sides are approximately equal (a unit's strength depends on its wargamers, not national deficiencies), and the various vehicles are similar in armor and gun penetration. Desert battles only need simple playing areas and GHQ provides an almost complete line of vehicles. Micro Armor has an additional advantage in that its size allows the maximum practical area on your wargame board which is unfortunately limited.

The first step is to set the relationship between the wargame and the A-H game. While the basic A-H game encompasses all the desert fighting and each turn represents one half month, our system must employ smaller time intervals, as each campaign will take many wargames - and much time - to resolve. In our system, one campaign is picked, i.e. Operation Crusader or the Galaza Battles, and the A-H game is divided into "days" of five turns each. Each A-H hexagon, or "square" as it is better known, is about 9-15 miles wide (the board is not map-accurate), but most wargame boards are only a mile or two across - even using a range of one foot equals 250 yards (1/3 true range for Micro Armor). Thus, to make the practical assumption that one A-H square is equal to the wargame board, you must compromise and keep in mind that unit movements will remain on two levels: A-H and the wargame. The following rules are designed from the viewpoint of the armor wargamer and thus vary considerable from the basic A-H rules. AFV-G2 provides articles every month with rules for the actual wargames. This month's rules are designed to clarify the relationship between the A-H campaign and the wargame. The rules are in numerical order for ease of reference:

1. Each player will command one of his side's major units. When his unit is engaged in a wargame, he will command and the other players will be his subordinates and vice versa. The over-all command structure is to be decided before the start of the campaign by the players of each side.
2. Each player must be a referee for one wargame. (Plan a system of alternation.)
3. Two A-H boards are used - one for each side. Each side's units will be placed on its own board. This is to create the "fog of war" as enemy dispositions are not known. Only the referee will have access to both boards.
4. Enemy units appear on your board only when in an adjacent square. The enemy marker will be removed when it is more than one square away. The referee will keep track by A-H coordinates. Each side must play the game based on its view of what the enemy is doing; reconnaissance will indicate if it is correct.

5. Unit counters will show only nationality and direction on top. Unit markings will be shown on the bottom. Either modify the Afrika Korps counters or better yet, purchase the newer A-H unit counters available from A-H.
6. The A-H "day" is divided into five turns each of three A-H "hours":
 - a. dawn.....6-9 a.m.
 - b. morning.....9-12 a.m.
 - c. mid-day.....12-3 p.m.
 - d. afternoon.....3-6 p.m.
 - e. dusk.....6-9 p.m.

The campaign lasts as many days as necessary.

7. Each side can move each of their units one square per A-H turn. Both sides move simultaneously. When completed, the referee compares both boards and sets up a wargame if a battle results. If more than one battle results, they are resolved one at a time from north to south. When all battles are finished (or a wargame has gone the full number or wargame turns - see below) return to the A-H board for the next A-H turn.
8. Each type of unit (moving one square A-H turn) may not exceed its daily movement total by the end of the A-H "day".
 - a. Armor.....5 squares/per day
 - b. Recce.....5 " " "
 - c. Supply.....5 " " "
 - d. Motorized infantry...4 squares (**dismounted**, ready for battle at the beginning of each A-H turn)
 - e. Artillery.....4 squares (implaced at the beginning of each turn)
 - f. Infantry.....2 squares

As each unit can only move one square per A-H turn, you must plan moves so that you are not exceeding the total possible per "day" for the slower units.

9. Composite units move at the rate of the slowest component.
10. A unit on the Coast Road can move two squares per A-H turn. This counts as only one square in its daily movement total.
11. Battle results when units of both sides occupy the same A-H square. The referee then sets up the wargame on the wargame board. Opposing units in adjacent A-H squares observe each other but are not engaged.
12. When one side moves into a square held by the enemy, the attacker starts on the edge of the wargame board and the defender in the middle.
13. When both sides move into a square simultaneously, toss a coin; the loser sets up in the middle of the wargame board and the winner at the edge.
14. Units will be set up according to the direction of the A-H unit counter arrow. Thus, units will sometimes start a wargame facing the rear of the enemy.
15. Only 3 of your units may occupy the same square. (Stacking rule)
16. A wargame consists of 10 turns (1 turn equals both sides move and shoot). At a movement rate of 1mm/mph/turn, a Micro Armor vehicle could easily cross a 4x8 wargame board in 10 turns. If a wargame is not resolved within the 10 turns, return to the A-H board for the next A-H turn. Then continue the wargame for another 10 turns, taking into account new units which may have entered during the A-H movement.
17. When 2 opposing infantry units are engaged, resolve battle by the A-H rules. This saves time!
18. When infantry opposes armor, the infantry is represented on the wargame board by its attached artillery and A.T. guns. If these are destroyed, the infantry unit is overrun and taken prisoner. The referee will end a wargame when this occurs. The infantry unit is eliminated if overrun.
19. Prisoners must be escorted to base or to a friendly infantry unit. If a unit is attacked while holding prisoners, it must either release them or fight at half strength. Liberated prisoners must be taken to a supply dump for re-equipment.
20. Prisoners cannot be liberated if moved to major starting base.
21. A wargame is over if one side's units escape from the wargame board, unless they would then move into an adjacent A-H square held by one of your units. Then, the wargame would be continued against your new unit for the remainder of the wargame's 10 turns.

- Continued on Page 29 -

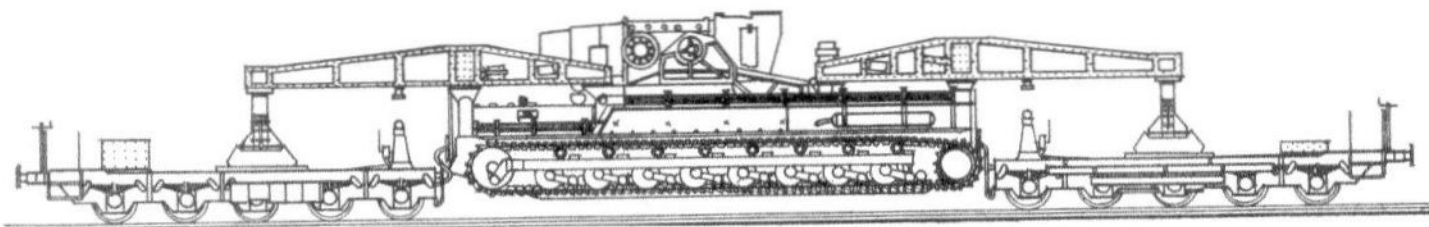
Karl Der Grosse

by S. R. Cobb



With the advent of the Maginot line, Germany began to devise plans for its conquest. Knowing that both mobility and heavy fire power would be the necessary keys, Germany, in 1937, authorized the building of a self-propelled siege mortar. In 1939, the first prototype was finished by Rheinmetall-Borsig A.G., Duesseldorf. This weapon, although commonly known as "Thor" or "Karl", was the 60cm Karl Mrs (heavy mortar/howitzer) L/8, 44 (Gerat 040). A latter variant was known as the 54cm Karl Mrs L/11,5 (Gerat 041). The Gerat 040 was built during 1939-1942 and the Gerat 041 during 1942-1944. A total of six to seven models were completed in batteries of two with one 35 ton crane, two 7 ton cranes, and two 2 1/2 ton cranes on the loaders. With two guns per battery, the odd one was probably the prototype vehicle or perhaps was held in reserve.

The munitions carriers or loaders were Panzer IV Auf F (6/BW)s built by Krupp mounting a 2 1/2 ton crane with an encased platform for carrying three rounds of ammunition for the Gerat 040 or 041. Normal weight for these vehicles was 23 tons.



The Gerat 040 and Gerat 041 were very similar except that the Gerat 040 had eight road wheels and eight return rollers per side, while the Gerat 041 had eleven road wheels and six return rollers per side. Both vehicles were mounted on torsion bars and powered by a twelve cylinder "V" engine with a two planetary gearbox and a torque converter transmission (four forward, one reverse). Although both weapons were powered by a twelve cylinder "V" engine, the first three vehicles received Daimler-Benz type MB 503 fuel injected gas engines, while the rest received Daimler-Benz type MB 507C diesel engines with a reduced output of 580 BHP.

Both mortars were meant to travel by train (total load 180 metric tons) utilizing the railroad system and then disembark to the target by moving a short distance on their full-tracked chassis. For traveling by railroad, the vehicles were loaded onto two different types of railroad cars: the first being a deep welled flat car, and the other consisted of the vehicle being slung on pedestals between two special flat cars. Train transport was achieved with the weapon sectioned out as follows: vehicle (chassis), gun barrel, loading mechanisms (cranes), and gun carriage. During the trip to the target, the crew platforms were stored for travel.

After the mortar had reached its target and was lowered on its torsion bars, it was prepared for firing. The procedure was a time consuming one (8-9 minutes between firing) which involved opening the breech, loading, closing the breech (while in a horizontal position), and then raising it to a 70 degree maximum elevation. It was then fired by an electric mechanism. This procedure was repeated for each shot while the range was fixed by varying the charge required. While both vehicles were fired in the same manner, they fired different types of rounds. The Gerat 040 fired 4400 pound projectiles, typed AP and HE (Geschoss L/41 Für Karl Gerat) while the Gerat 041 (first barrel delivered in May 1942) fired fixed ammunition of 3310 pound projectiles, types AP, HE, and AF. Towards the end of the war, both vehicles fired concrete shells - due to a lack of steel - which created a good shrapnel effect.

The first recorded action of the "Karl" occurred in 1942 when the vehicle was reported to have been at Brest-Litovsk and later Sevastopol. No other account has been made of their actions.

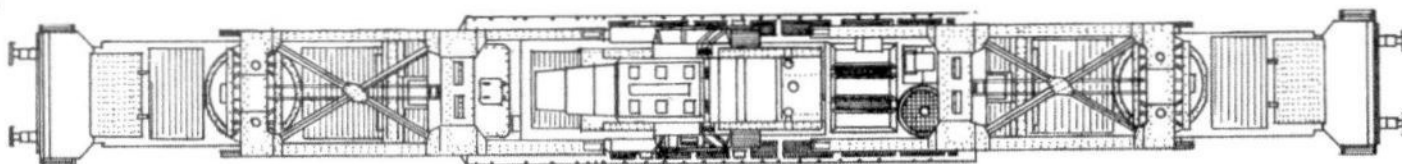
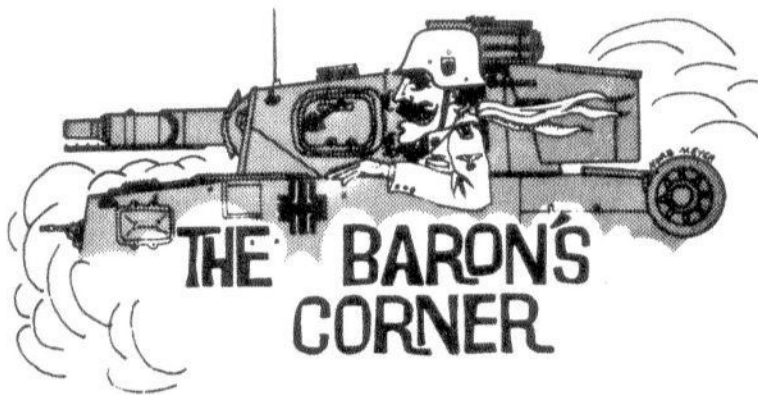


TABLE (KARL MÖRSER)	0 4 0	0 4 1
WEIGHT	120,000 KG	124,000 KG
WEIGHT WITHOUT VEHICLE	68,000 KG	72,000 KG
BARREL WEIGHT	28,330 KG	32,000 KG
GROUND WEIGHT	1.77 KG / CM ²	1.83 KG / CM ²
AXLE WEIGHT / AXLE	18,000 KG	18,000 KG
RIFLING	5 DEGREES	5 DEGREES
CALIBER	600 MM	540 MM
BARREL LENGTH	5,068 MM	7,100 MM
" " (NO CHAMBER)	4,200 MM	6,200 MM
TRAVERSE	2.5° RT-LT	2.5° RT-LT
RANGE	6,800 M	10,500 M
VELOCITY	220 M / SEC	300 M / SEC
ELEVATION	70° HORZ.	70° HORZ.
PENETRATION — STEEL	454 MM	
" — CONCRETE	2,500 MM	3,000 MM
WEIGHT CONCRETE SHELL	2,200 KG	1,580 KG
EXPLOSIVE WEIGHT	240 KG	180 KG
" " (%)	10.9%	11.4%
HEIGHT	4,780 MM	4,780 MM
LENGTH	11,150 MM	11,150 MM
WIDTH	3,160 MM	3,160 MM
MAN VEHICLE	112	96
HORSEPOWER	580	580
SPEED	10 KM / HR	10 KM / HR
TRANS LENGTH	32 M	32 M
GROUND CLEARANCE	350 MM	350 MM
FUEL CAPACITY	1,200 L	1,200 L
TRACK LENGTH	7,000 MM	7,000 MM
" WIDTH	500 MM	500 MM
<div> <div>MM = .03937 INCHES</div> <div>KG = 2.2046 POUND</div> <div>M = 39.370 INCHES</div> <div>L = 1.0567 QTS</div> <div>KM = .62137 MILES</div> <div>CM² = .15500 IN²</div> </div>		



The Care and Feeding of the Airbrush
by Norb Meyer

In view of the season that has just passed, we thought that an article on the care and feeding of the airbrush would be very fitting. There are three types of airbrushes on the market for the average modeler. Working from the most expensive, the first that comes to mind is the Pasche. This particular brush usually starts at around \$25 and works up to about \$65 - just for the brush, never mind the other stuff that goes with it. This brush is designed for ink work and in it you have a very delicate instrument unfit for the average bang-it-around modeling job.

The next two types fall roughly in line price wise and they both have their advantages and disadvantages. These two are the "Binks" and the "Thaer and Chandler". The one thing to bear in mind with either of these brushes is the scale on which you will work the most. If you are the type of modeler that works in small scales, or likes to do very fine detail work then the "Thaer and Chandler" is probably the best bet (price on this one is about \$22) as it will do the fine work and is minutely adjustable. Its worst drawback is that you will have to spray forever on large scale vehicles, but then you won't be so apt to overspray them either. Also, this brush has a "needle" that fits through the entire length of the brush and is the carrier for the paint. If the needle is dropped the brush tends to spray at odd angles. Add to this the fact that, if the needle is not cleaned after each use, it will never come out of the brush! The "Thaer and Chandler" comes two ways, with either a color cup that fits on the side of the brush, or a bottle that mounts underneath. If you have the color cup, be careful, when spraying the underside of vehicles one has a tendency to tilt the brush! For the modeler that likes to work in the larger scales the "Binks" is for him. If he chooses the "A" tip, it will allow him to also do finer work. We would recommend staying away from the "B" & "C" tips unless you get a charge out of painting the back fence.

Air supply is another thing that must be considered in the care of an airbrush. There are three sources of air supply, all have limitations. The first of these is the "canned air", a small can that looks almost like shaving soap. This sells for around \$2.50 in the store and, while it is handy and very portable, it only lasts for ten minutes or so. If you cannot afford a compressor this is your best bet; but bear in mind that it gets expensive, and if you do much painting you could well neigh pay for a compressor in a short time.

The next source is the compressor, but unfortunately most compressors "pulsate". This can be overcome in several ways, the first of which is an extra six feet of hose and water trap. You should have this anyway especially if you live in a damp climate, otherwise during your spraying a "splurk" will appear. This is just a droplet of water in the paint but completely ruins the paint job. The second means of eliminating the pulse is to use a pressure gauge. This is a bit more expensive but maintains a constant pressure. The last source of air is the "bottled" type. This is the type that comes in the steel cylinders. These "bottles" can be rented in many areas, then refilled when empty. CO2 is the usual fill that most modelers prefer when using this source of supply. However, an air regulator is also needed with this, and the main drawbacks are the cost and the fact that the tank tends to run out just when you need it most!

One rule to make for yourself before the ol' airbrush is fired up for the first time is to Keep it clean. Even if you run a little paint through for a color test, break the brush down and clean it thoroughly. If this rule is followed you will never have any problems. The "T&C" is the simplest of the two main brushes to clean. If you have the color cup, remove the paint from the cup and unscrew the bottom, then with a pipe cleaner dipped in solvent clean the excess from the cup. Next, squirt a little solvent into the hole and spray it out, then replace the cup filling it with solvent and spray until the brush sprays clean. After this is done, remove the "needle" and clean it with a rag or paper towel soaked in solvent.

Just remember an airbrush works on the same principle as a rifle. Let it get dirty and crude up and it won't shoot when it's supposed to, but keep it clean and shiny and it will never let you down.

戰車兵

THE ROAD TO SINGAPORE:

The Saeki Detachment

by John Yonos

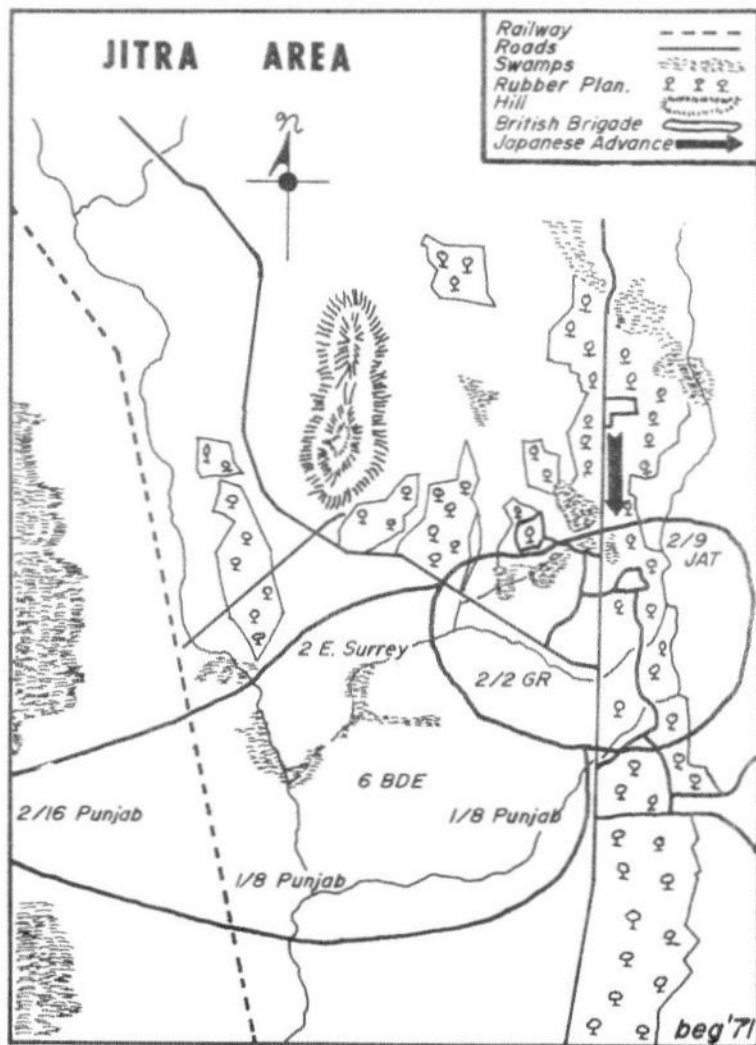
At midnight on 7 December 1941, the Japanese launched their attack on Western-controlled Southeast Asia. At Singora in Thailand the main part of the Japanese 5th Division fought its way ashore. Once it had consolidated its positions, Lt. General Tomoyuki Yamashita ordered a force sent to the Thai-Malayan border. For this assignment Lt. -General Takuro Matsui, commander of the 5th Division, chose Lt. -Col. Shizuo Saeki. Saeki was placed in command of the reconnaissance unit of the 5th Division, and Colonel Masanobu Tsuji, the Staff Officer in Charge of Operations, commandeered three "Chi-ha" medium tanks and a mountain artillery gun and rushed to catch the Detachment. Together their forces included the three Chi-ha's, a light armored unit, two squadrons of mechanized cavalry, and the field gun.

Lt. -Col. Saeki chose to attack the British with this small force. As the detachment approached the Thai village of Ban Sadao on Dec. 8th, they found British troops already emplaced. The Japanese had run into two companies of the 1/8 Punjab Battalion, 6th Indian Brigade, which were equipped with some anti-tank guns and armored cars. After fighting for about an hour, the British force retreated. Left behind was an armored car containing a blood smeared map of the British fortifications and dispositions around Changlun and Jitra. This was very fortuitous for the Japanese as their own maps were merely copies of outdated atlases. At the frontier, a demolished bridge was repaired and so the Saeki Detachment could cross. The detachment ran into more British about 5 miles inside Malaya; some 40 or 50 Japanese soldiers with flashing swords and blazing firearms charged the British line. The British again retreated. By the 10th of December, Saeki was ready to attack Changlun.

Changlun is about six miles south of the Thai-Malayan border and thirteen miles above Jitra. Major-General Murray Lyon, in command of the 11th Indian Division, had placed two battalions of the 6th Indian Brigade there. The Saeki Detachment at this time consisted of: one company of light armor and one of light tanks, two companies motorized infantry, one company (10-12) Chi-ha medium tanks, two mountain artillery guns, one platoon engineers, and one section each of medics and signallers. Total strength was about 500 men.

The British opened fire with their artillery as the Japanese engineers repaired the bridge immediately in front of their position; heavy rain was falling all the while. Meanwhile Lt. -Col. Saeki and Col. Tsuji discussed the tactics to be used in the attack. They decided to use "unorthodox" tactics - what could be called, in light of today's armies, the classical use of armor. The tanks punch a hole in the enemy line, mechanized infantry follows the armor, and dismounted infantry holds the flanks of the hole to prevent its closure. According to Col. Tsuji, these were novel tactics as the Japanese had not practiced them at maneuvers.

Because of the noise from the barrage and the deluge of the rain, the Japanese attack

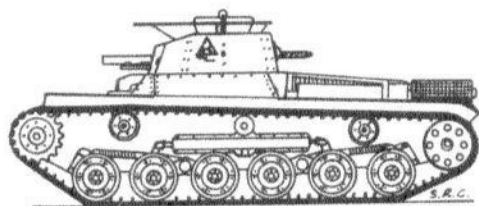


struck the British forces almost before they knew it. Suddenly, the Japanese came upon ten anti-tank guns with their muzzles pointed straight at them. But none of the AT guns fired, although the Japanese slowed down fearing a ruse. The Japanese could not find a single crew member either alive or dead - they had taken shelter from the rain among the trees a hundred or so yards off the road, and the Japanese infantry raced in amongst them, destroying or demoralizing the Indian troops.

Suddenly, the British counter attacked up the road with armored cars. The fighting got so close that the cannon and machine guns on the vehicles could not be used. The British could not extricate their vehicles in the hand to hand fighting because of large drainage ditches on either side of the road. They were forced to abandon them or die. The British at Changlun were ordered to withdraw to Nangka with a company acting as rear guard.

Out of the heavy rain roared the Japanese tanks again, closely followed by motorized infantry. This force quickly overran the rearguard and descended upon the retreating column. Many of the Punjabis had never seen a tank before and panicked. At Asun the 2/1 Gurkas were also routed by the tanks.

Through speed and daring the Japanese captured ten bridges intact, but an AT gun stopped the lead Chi-ha blocking the eleventh. Night was falling and so the Japanese proceeded to consolidate their gains.



Type 97 Chi-Ha

On the Perlis road, the British outpost withdrew as ordered a demolition team at one of the larger bridges heard a mechanized column approaching their position; they immediately destroyed the bridge. Out of the rain came the British outpost group which was forced to leave its vehicles and AT guns on the northern side of the river.

Meanwhile, at Lt.-Col. Saeki's HQ, a recon unit was sent out led by second-Lieutenant Oto. He soon reported that there were gaps in the British wire and the troops were not all in position. Col. Saeki ordered a night attack by the first infantry company.

Holding the Jitra line was the 11th Indian Division consisting of the 6th and 15th Indian Brigades with the 28th Indian Brigade, less one battalion, as divisional reserve. The 6th Brigade consisted of the 2nd East Surrey Battalion, the 2/16 Punjab Battalion and the 1/8 Punjab Battalion. The 15th Brigade consisted of the 1st Leicester Battalion, the 2/9 Jats and the 1/14 Punjab Battalion. The 1/14 Punjabis had been overrun at Changlun and so the 2/2 Gurkha Battalion was lent to the 15th from the 28th. Behind the main position was the 155th Field Regiment with 16 4.5-inch howitzers in two batteries, the 22nd Mountain Regiment equipped with a variety of field pieces, and the 137th Field Regiment with 24 25-pounders. Interspersed amongst the infantry were AT guns of the 80th Anti-tank Regiment (36 2-pounders) and AA guns of the 16th Light Anti-aircraft Regiment (16 Bofors).

The Japanese night attack proceeded at full dark. Heavy rain helped the Japanese to move up to the "jump off point". It was still raining when they launched their assault. The tanks supplied close support from the road. About an hour later the attack had come to a halt. The second infantry company was committed. At dawn the attack had not progressed much further. At this time Col. Tsuji inspected the jump off point and was shocked. The place was a gap only 100 yards wide on either side were wire entanglements and minefields. They had attacked without knowing the full area. Col. Tsuji raced to the rear and returned with artillery observers. They called in shells on the British positions by moving to a point just behind the front line of Japanese troops.

The British commander ordered a withdrawal of ten miles. The 6th Brigade won a short reprieve for the division by counter-attacking the Japanese infantry which had penetrated to the middle of the 2/9 Jats; however, they could not destroy the Japanese penetration.

On December 13th, the 11th Division retreated while the Japanese caught their breath. The retreat was to Alor Star. There the 11th Division took stock of the battle. The 15th Brigade was down to 600 men. The 6th Brigade had lost most of one battalion. The 28th Brigade had lost only the men in the battalion lent to the 15th. There were a few casualties in every company. The 1st Leicesters and the 2nd East Surreys were so badly mauled at Jitra that they were amalgamated into one battalion known as the "British Battalion".

Japanese losses were placed at twenty-seven dead and eighty-three wounded. They had captured about fifty field guns, fifty heavy machine-guns, three hundred trucks and armored cars, and enough provisions and ammunition to supply a division for three months. They had to grab and run. The orders went out - attack before the enemy has a chance to recover. The Saeki Detachment, now less than 400 men, proceeded down the road that led ultimately to Singapore.

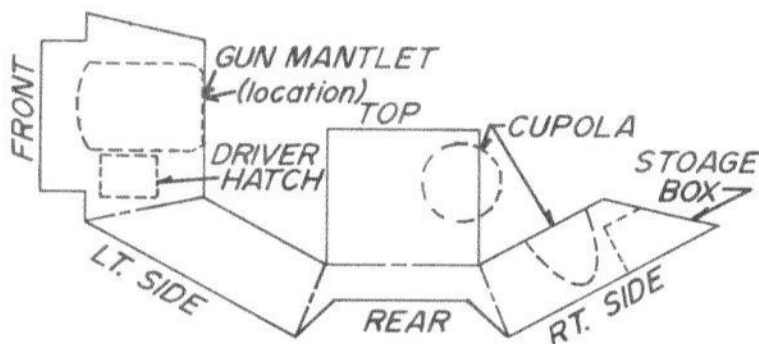


The SU-100

by Jim Garrison

The SU-100 came as the result of a need for a more adaptable infantry support weapon. It superceded the SU-85 since the SU-85's effectiveness had been compromised by the contemporary up-armament of the T-34's with the 85mm gun. By mounting the 100mm gun on the T-34 chassis, the Russians were again able to deal effectively with new German armor developments.

Start the conversion by removing the turret ring from the ROCO T-34/85 (Z-161). Cut this down to the hull top. Next, remove all detail from the front half of the hull sides and the hull front, leaving these pieces smooth. You might try to save the front driver's hatch, but I think it is easier to just cut a new one from .010 sheet plastic. Construct the superstructure from .020 sheet plastic using the template, and position this in place. Fill the area where the turret ring projected into the engine compartment with plastic putty. When this dries, sand this area smooth. Carefully remove the cupola and the mushroom vent from the roof of the T-34/85 turret. Add the cupola to the superstructure top in the position indicated by the dotted line. The offset is to compensate the breech of the 100mm gun. Then fill the overhang with putty or plastic sheet to the contours of the dotted line on the drawing of the right side. Cement the mushroom vent immediately behind the cupola. Cut the rest of the roof hatches from .010 sheet plastic. Use Bellona Prints series two or Armor in Profile number 21 for placement of these and other detailing. Add the mantlet back plate at this point. Use the drawing of the front plate for this piece's shape. If you want the ARV or command version of the SU-100, stop here. For the mantlet, I use the mantlet from the ROCO Jadgtiger (Z-171) but it could be just as easily carved from sprue. Before adding the gun, mount the mantlet top plate. Refer to the Bellona Print or the Armor in Profile drawing for the shape of this piece. Use the barrel from ROCO's M-36 (Z-206) for the 100mm D10.S gun. Many post war vehicles had a stowage box to the right side near the front. This position is depicted by a dotted line on the drawing.



Scale: 1/86

The SU-100 entered service in the Red Army in 1944. It served as the standard support gun for the mechanised and armored divisions until their reorganization in 1957. Today it serves in the first line formations of many Middle-East and Eastern Bloc countries.



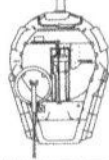
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BEWARE! The Mammoth Hummingbird

by Bill Platz

On the coast of the Dark Continent, near the town of Port Elizabeth, are the breeding grounds of the Mammoth Hummingbird. This strange creature first appeared late in 1940, when it was seen emerging from the Ford South Africa Plant at Port Elizabeth. It was indeed a strange bird. The chassis was that of a regular 3 ton Ford truck manufactured in the United States and shipped to South Africa for assembly. To this was added a hull of 12mm armour plate and a Marmon-Herrington front wheel drive conversion kit, giving the vehicle four wheel drive both from South Africa. Armament was provided by the United Kingdom in the form of a Vickers heavy machine gun; and, when all the pieces were put together, the result was a Marmon-Herrington Mk II Armoured Car.

For a modified Ford truck, the Marmon-Herrington Mk II was not a bad armoured car and was much better than some other improvised vehicles then in use by the British. It also had one great advantage over the more sophisticated designs - it was available. The Mk II was the second in a series of South African armoured vehicles, and was the first to be used by British as well as South African units. It replaced the 1924 Rolls Royce A. C. 's, with which the 11th Hussars had been equipped, and was also used by the King's Dragoon Guards, and the 4th South African Armoured Car Regiment at the time of Operation Crusader (November 1941). Subsequent South African Reconnaissance units were also equipped with Marmon-Herringtons, although these also included a number of Mk III's as well as our Mk II.

The Mk III was basically an improved version of the Mk II and the earlier model can be distinguished by the sloping rear with a double door, and the double radiator covers which, when closed cover the radiator and headlights with armour plates. The Mk III also had a shorter wheelbase (117 inches as compared to 134 inches) and a smaller crew (3 instead of 4 for the Mk II).

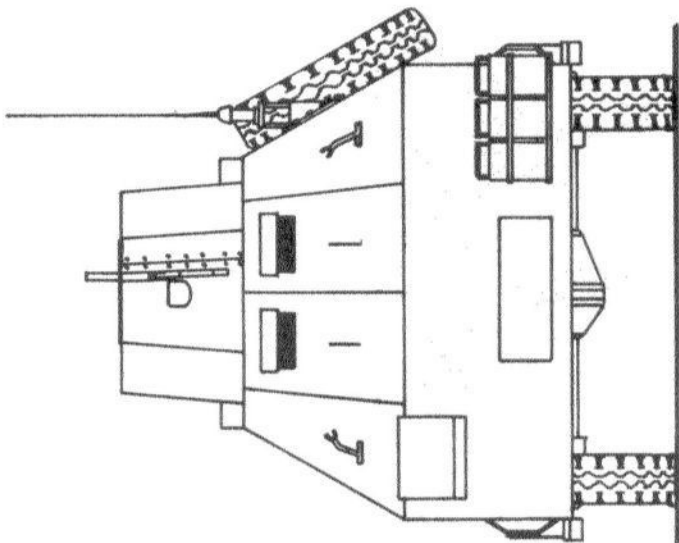
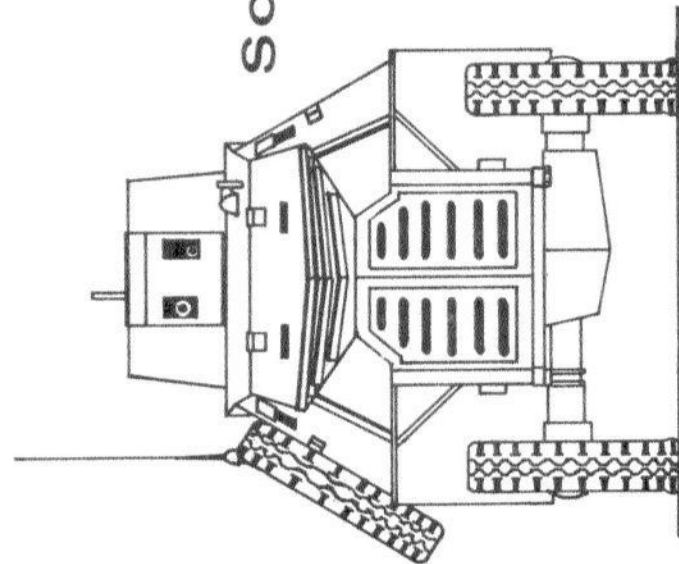
When the Marmon-Herringtons arrived in the desert the first thing to go was the Vickers gun - right out of the turret and onto an AA mounting. It was replaced by a wide variety of weapons depending on the personal preference of the vehicle or unit commander, the availability of ammunition and the ingenuity of the crew. The most common arrangement was the use of a Boys Anti-Tank Rifle with a Bren Light machine gun. The AT rifle left much to be desired as an armour piercing weapon. Effective range was only 500 yards at which it could penetrate only 16mm of armour - sometimes. The Bren gun was the standard British Squad L. M. G. - a good weapon capable of firing 550 rounds per minute. This was the usual armament but it was not uncommon to see a Mk II with the roof lopped off and a captured Italian 20mm Breda mounted in the open fighting compartment (in some cases a 47mm Italian AT gun was fitted in a similar mounting).

In service the Marmon-Herringtons were somewhat less than an unqualified success. Despite the newly acquired 4-wheel drive, the chassis was still that of the lowly Ford truck and the comparatively long wheelbase gave it rather poor cross country performance. There was also considerable criticism of the springs which had a tendency to irritate the occupants of any car traversing the rocky, trackless "going" of the Libyan desert. Of course many of the complaints about the Marmon-Herrington's can be laid to the prejudice of the crews. After all anyone who has to make the transition from chasing Italians across the Cyrenaican wastes in a Rolls Royce to being chased by PzKw III's with nothing more substantial than an overburdened Ford chassis to carry him, is not likely to think highly of the Ford.

Nevertheless ugly beasts did yeoman service for the 8th Army throughout the desert campaign. It was a Marmon-Herrington of the Kings Dragoon Guards that first engaged the Afrika Korps on March 31st, 1941. Again, when Rommel probed the British defenses before "Operation Crusader", there were Marmon-Herringtons shadowing his every move and keeping his Recce units from gaining any hint of the coming British attack. In the great British armoured attacks of October, 1941, Marmon-Herringtons lead the way - a thin screen in advance of the "Honey's" and "Crusaders" and harrying the retreating Axis all the way back to Mersa Brega. At Gazala the 4th and 6th South African Armoured Car Regiments, equipped with Marmon-Herrington II and III's, maintained contact with Rommel's armoured columns as they tried to sweep unnoticed around the southern flank of the British position. And at the Battle of El Alamein, there were 212 Marmon-Herringtons on the strength of the 8th Army when it launched its final offensive against the Axis in the desert.

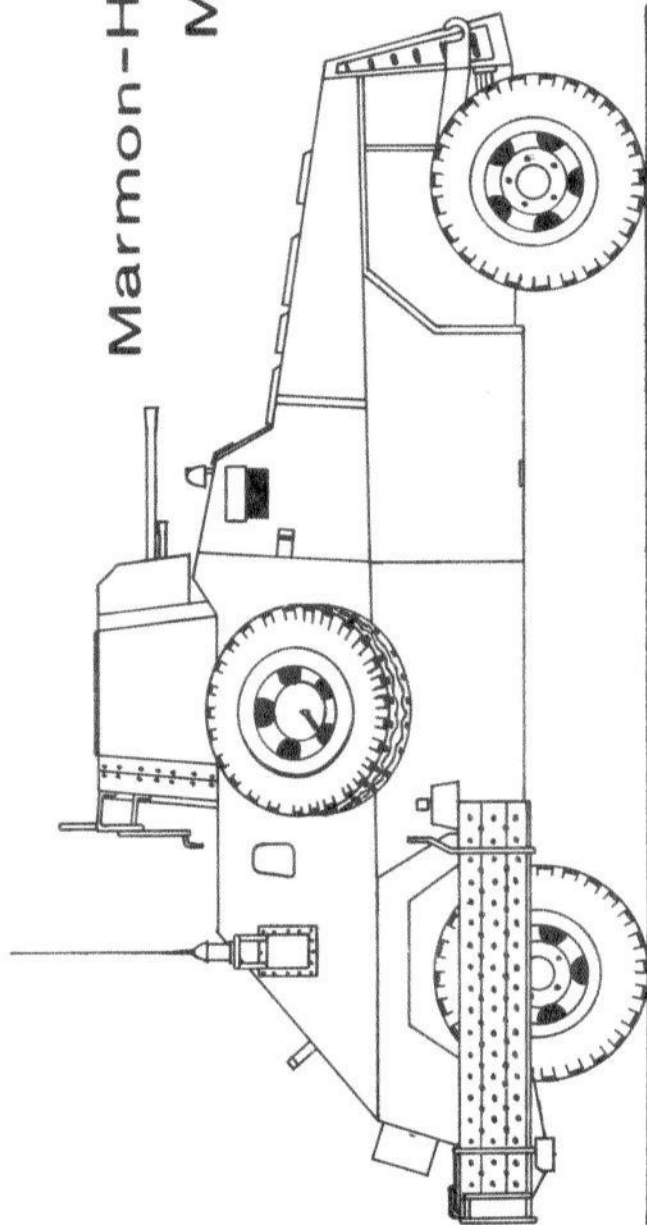
Though it was little more than an armour plated Ford truck armed with BB gun, the Axis forces soon passed the word... "Beware, the Mammoth Hummingbird!"

Scale: 1/32



Marmon-Herrington Mark II.

Drawn By:
S. R. Cobb



The 7.62cm Pak 36(r) German-Russian AT Gun

by Kurt Fischer



I first encountered the 7.62cm Russian anti-tank gun in the early summer of 1942, when my unit moved to the Russian front. My anti-tank platoon was equipped with the 5cm Pak 38, which we had just received. Our earlier training had been with the already obsolete 3.7cm Pak 35 in France, and we were happy to get the larger, more accurate 5cm guns. Shortly after our arrival in Russia, our Panzerjäger-Abteilung (Anti-tank Battalion) was detached from our Panzer-Division and attached to an Infanterie-Division for increased tank defense. My platoon was equipped with four anti-tank guns towed behind 6-wheel light Krupp trucks (Kfz.69), and we were moving northward to join the infantry when we first saw captured Russian guns. The unit that had possession of these guns told us how they were used by the enemy, and how effective they were.

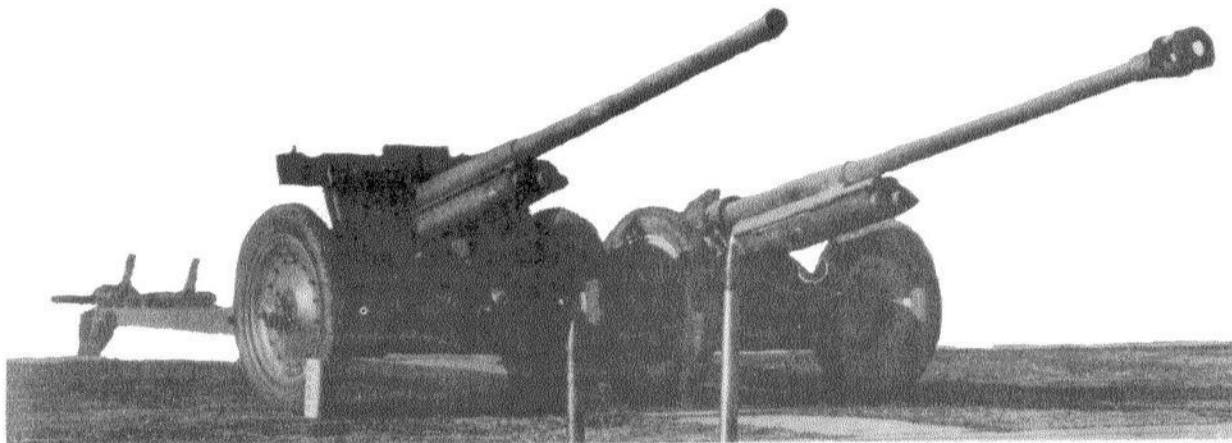
We acquired our first 7.62cm Pak three days later, after we had received our first casualties. We lost one 5cm gun and four men to a T-34 attack; the tanks were stopped and turned back, but one of our 5cm guns was crushed when it was ineffective against an onrushing T-34. We replaced the lost gun with a captured Russian gun and some ammunition which the infantry were persuaded to part with. In the next seven days of my first combat, the 7.62cm Russian Pak gun proved a really effective weapon against its former owners, with a record of seven T-34's and one KV-I destroyed.

The ammunition for the captured guns was quite different from our German ammunition in appearance. Where most German ammunition was in a long slim case with little taper, the captured ammunition was in a short, squat case. Soon after we started using these guns, the ammunition became rather difficult to obtain. We 'scrounged' ammo from any unit that might have captured any. With a potential shortage of Russian ammunition, we started getting German reloaded cartridges with our Panzergranate 39 and 40 projectiles inserted in the original cases. The original Russian markings on the case were 'x' 'd out with a large black cross; this served to identify the reloadings. Our own projectiles performed far better than the Russian AT ammo, and there were no problems with these new shells.

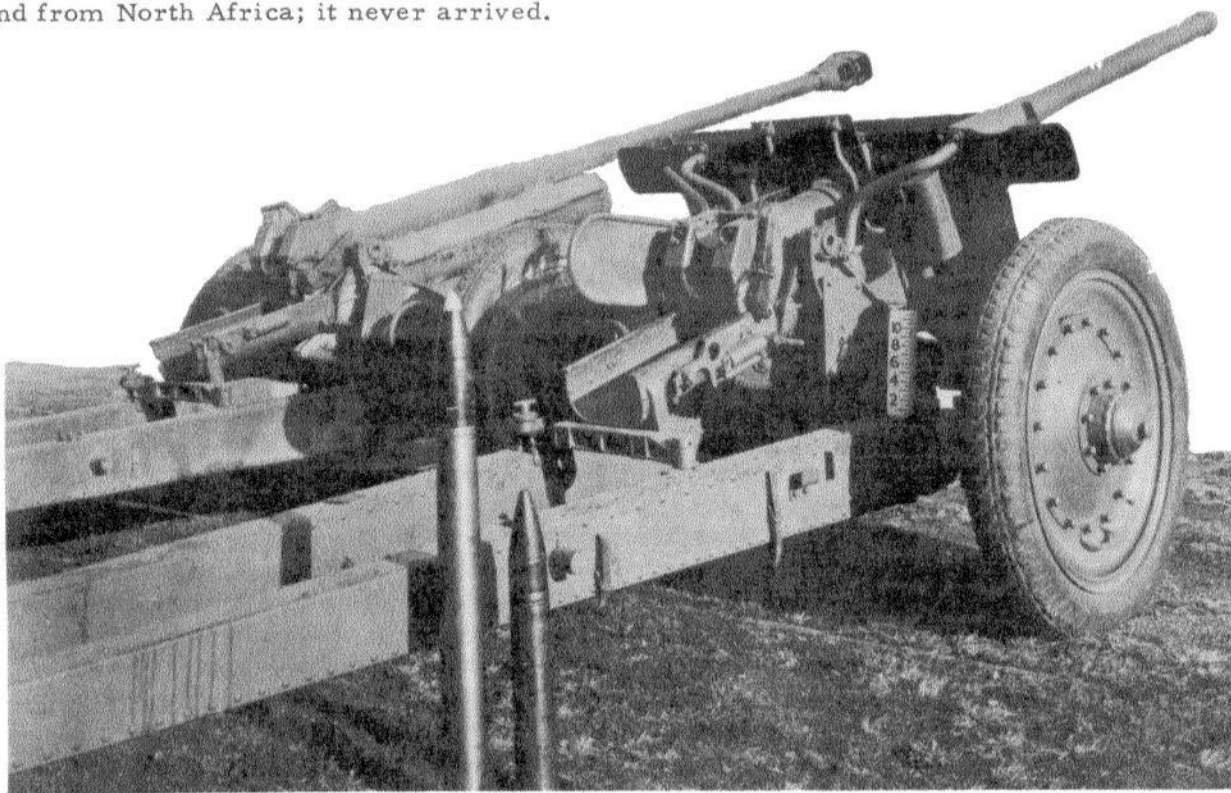
Later, when new shell cases became difficult to acquire, all 7.62cm Russian guns were withdrawn from our hands and turned into Ordnance shops. When they came back, a number of changes had been done. The most obvious difference was a muzzle brake that was very similar to that on the new 7.5cm Pak 40. The biggest difference was that the gun had been rechambered for a German cartridge case. The cartridge case of the 7.5cm Pak 40 was slightly reworked to take the larger 7.62cm projectile and these new rounds looked almost identical to those of the 7.5cm gun. The projectiles of the new 7.62cm rounds were all marked with either a white tip, or a white band to indicate that they were larger and for easy recognition. Of course, armor-piercing projectiles were painted black, while HE and HEAT projectiles were painted green.

The reworked 7.62cm Pak 36(r) was very successful. They "punched" holes in every Soviet tank that we shot at. Our 5cm Pak 38's were soon withdrawn, and we used the Russian guns until we were given fully motorized guns in the winter of 1942.

The photographs show both the original and the modified 7.62cm Pak 36(r) as well as the two types of ammunition. These photos are courtesy of Aberdeen Proving Ground Museum.



The gun without muzzle brake is the original Russian gun, that fires the short squat cartridge. The other gun with muzzle brake is the German re-work to use the 7.5cm Pak 40 shell case (re-chambering). The missing gun shield was taken off for shipment to Aberdeen Proving Ground from North Africa; it never arrived.



THE INTERNATIONAL FEDERATION OF WARGAMING is a service organization of wargamers, modelers, historians, professional people and those interested in games of skill of all types. Our organization provides a large number of services associated with wargaming such as: rating, matching and rule interpretation committees; a game design bureau; a Co-ordinator of Wargaming - for tournaments; and large, general interest events such as conventions - the Lake Geneva Convention is in its 4th year and features both wargames and many types of models; and the monthly publication, INTERNATIONAL WARGAMER. This magazine, photo offset and reduced, has articles on all phases of wargaming, games

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Lenard Lakofka, 1806 N. Richmond St., Chicago, Illinois, 60647.

Fellow wargamers--we have been demoted! No longer will we wear the star studded uniform of a Generalissimo, commanding 250 divisions across the length and breadth of Europe. No longer will we lose the entire 101st Airborne Division in the roll of one die. The overlords of life and death in "Panzerblitz" command platoons. Ego-deflation in a black and orange box; but, for once you can get the feel of tanks and infantry previously only available in HO scale wargaming. "Panzerblitz" is THE game for the wargamer who has neither the space nor the inclination to build a wargame board.

The box is in Avalon Hill's bookcase game style, and the entire set fits into an 8 1/2" x 12" x 2 1/2" sleeve--a welcome relief after the larger flat boxes employed in the earlier war games. The outer cover is decorated with Jagdpanthers (which should give you an idea of whose side the game makers were on) and the inner box has the tables and charts printed on the top. An excellent idea since the game is complicated enough without having to hunt for charts while your opponent is nervously fingering the die. The playing pieces are the usual cardboard punch-out type; however, more than usual care should be used when cutting out the pieces as the backs have a tendency to tear or come off. A sharp X-Acto knife should do the job and a little time and patience here is worth the

effort. The German pieces are gray; the Soviet's, light brown. (Notice how the Avalon Hill people avoid making one side blue (the good guys) the other side red (the bad guys). Armored, truck, half-track, wagon, and horse cavalry units have a silhouette for identification; the other units use the standard NATO type map symbol. Each counter also records the attack factor; type of weapon, the range, the defense factor, and the movement factor. The addition of range and weapon type puts this game head and shoulders above all of the previous AH wargames.

The instruction booklets are the usual AH-long and complicated; but, the AH people long ago decided that, if you weren't willing to plow through the rules you wouldn't have bought the game in the

first place. The campaign analysis book gives some excellent down to earth data on the vehicle types involved, a little propaganda, and several pages of organization charts. These are especially worthwhile because with them you can use the pieces available with the game to set up units up to division size. The rule book is actually a folded piece of paper (17 x 14), a change in the normal format of questionable value. AH recommends that you read through the rules briefly, omit a few, and try to play (looking up rules as you go). This is as good a way as any sense. The first game will be a trifle short of chaos. Don't despair however, the game is worth the effort.

Panzerblitz is designed to be "challenging." The most difficult rule is observation. You cannot see (and fire) through objects such as buildings, trees, hills, etc. An excellent addition to the game and a plus in the realism column. The guts of the game are the 12 situation cards. Each situation recreates an actual battle that took place in Russia between July 43 and July 44. Order of battle, appearance and condition of victory are given for each side. Each situation varies in complexity--the higher the number, the more complex. 7 of the situations are tank vs infantry, anti-tank and artillery. The other 5 are tank vs tank. The victory conditions give each side 3 types of victory; marginal, tactical, and decisive. If one side gets a tactical and the other gets a marginal; the tactical wins. There is also a large gray area where neither side wins, and this is the game's main failing. Out of 4 test games (about 4 hours playing time each), 3 ended in a tie. The reason for this is that the observation rules make fire difficult. Neither side can get in enough shots to achieve their victory conditions. After going over the rules, it becomes obvious that some changes are needed. The rules suggest also that the players take the organizational charts and make up new situations. An excellent idea, as in buying extra counters and board sections to make larger games possible. The gameboards are perhaps the cleverest idea since the Wooten firebox. There are three boards each 8" x 22" complete with rivers, roads and forests. Each different but carefully designed so that no matter which way they are set up all the rivers, etc. connect. The boards can be connected side by side or end to end. The situation cards give the correct set up for each situation. Panzerblitz is available from The Avalon Hill Co., 4517 Hartford Rd., Baltimore, Md., 21214.

Chongju Roadblock

by Lonnie Gill

On October 29, 1950, the men of the 89th Tank Battalion rolled out of their sleeping bags into a cold, crisp Korean morning. They were part of a task force moving north as the victorious U.N. forces pursued the North Koreans toward the Yalu River. The 89th was providing armor support for the British 27th Commonwealth Brigade. D. Company, supporting the Royal Australian Battalion, led the task force. With enemy resistance stiffening, the column moved slowly toward Chongju while their liaison plane, piloted by Lt. James T. Dickson, directed air strikes against the enemy.

While the planes were busy, Dickson located a camouflaged tank position on a nearby reverse slope. Dickson radioed that he would spot for indirect fire by the 89th. The 1st Platoon, led by Lt. Francis G. Nordstrom, opened fire. After firing ten rounds of 76mm AP, thick black smoke billowed up from the target.

Lt. Dickson then radioed that he had detected North Korean tanks blocking the road where it cut a narrow pass through the ridge about two miles ahead. Since the pass was surrounded by rice patties and couldn't be bypassed, it was decided to make a double envelopment attack. Lt. Nordstrom's platoon would make a frontal assault while the other two platoons and the Australian infantry attacked the high ground on either side of the road. The two companies of infantry mounted the 13 tanks and moved off at high speed down the narrow dusty twisting road.

When Lt. Nordstrom, in the lead M4A3E8, was within 100 yards of the road cut, he opened machine gun fire on enemy soldiers climbing the ridge. He then directed his 76mm AP onto a machine gun crew approaching the road from the right. When the first shell exploded, it blew the camouflage off a dug-in T-34. The North Korean tank immediately opened fire and its shell screamed past. The tankers later reported that the shell passed between Lt. Nordstrom's head and the open hatch cover. The Lt. only had time to gasp for AP. His gunner fired, hitting the front of the T-34 only 100 yards away. After several rounds, it exploded, covering the right side of the ridge with thick greasy smoke from its blazing gas and ammo. By now the rest of the platoon was firing on the ridge.

Figuring the road was probably boresighted, Lt. Nordstrom stopped his five tanks about 70 yards from the pass. The fire on the left ridge soon exposed another T-34. Lt. Nordstrom's gunner, firing without orders, destroyed it with two rounds. The T-34 exploded, throwing part of its turret high into the air.

Meanwhile, the rest of the company and the Australian infantry were attacking both flanks. After clearing a jam caused by faulty ammo, Nordstrom joined his platoon firing on the ridge. Since no targets were in sight, he started firing AP into likely tank positions. The sixth round was rewarded with a flash which ended yet another T-34.

Shortly thereafter, an enemy self-propelled gun fired at the lead Sherman. The green tracer passed only a foot above Lt. Nordstrom's turret, and hit one of the tanks supporting the left flank attack. Four men were injured. Because of the smoke from the burning T-34's, the SP could not be located. The platoon tried to find it by firing into the smoke on top of the right ridge hoping the enemy would think his position was located and expose himself. The sweaty loaders rammed round after round into the cannons, but there were no results; the platoon ceased fire as they had used up most of their 71-round basic load.

Lt. Cook, commanding the left flank platoon, climbed into the damaged Sherman and, sitting with a pencil through the penetration, tried to pinpoint the North Korean gun. Lt. Nordstrom's platoon then opened fire again but still no luck. In desperation, Lt. Nordstrom fired at the first tank on the remote chance it was still in operation. As the gunner fired the third round, there was another explosion. With this, resistance ended, and the Australian infantry secured the position and prepared for the inevitable counterattack to follow.



- Continued on Page 29 -

The Soviet BT-7

by Carl Dembrowski

The Soviet tank force of World War II took its initial uncertain steps in the First Five Year Plan of 1929. Under the Plan's specifications a tank force was to be set up resplendent with technicians, suitable factories, and training centers for crews. Although a step in the right direction, the Russians realized the latent inadequacy and hopeful thinking of such a program. However, as a development of this, the Soviet Government established the tank development center at Voronezh. Here, they tested foreign armor acquisitions; the most notable being the Christie design of 1931. From this weapons system the Soviets were to sire the BT series and later the T-34 series.

The BT series was patterned closely after the Christie design, not for the simplicity of copying, but rather for reasons of established performance and simplicity of design. This project was advantageous from the Russian standpoint. For one thing, the costly and time consuming necessity of providing experimental phototypes was negated; for another, it allowed for a rapid establishment of factories to handle the production; and finally, the design lent itself to production. This last point must be noted because the Russian economy at this time was still basically agricultural; so that to provide a large scale armament program was a case of "If wishes were horses, then beggars would ride".

The BT followed accepted norms in design. The engine was placed in the rear with the driver's and fighting compartment forward. A bulkhead separated the engine from the others. The BT's had a crew of three: driver, loader-gunner, and commander. Although some electric welding was done, notably on the front of the vehicle, most of the sections were bolted together. This weakened the quality of the plate in that under stress the bolts usually gave.

The bogie wheels of the Christie suspension were attached to crank arms, which were, in turn, attached to vertically mounted coil springs. The bogie wheels themselves were large so as to be more suitable for running without tracks and for ease of construction. One notable aspect of the BT series was it was capable of running on either tracks or bogie wheels. This was accomplished by transferring the main drive to the rear pair of bogies. A simple and yet effective method.

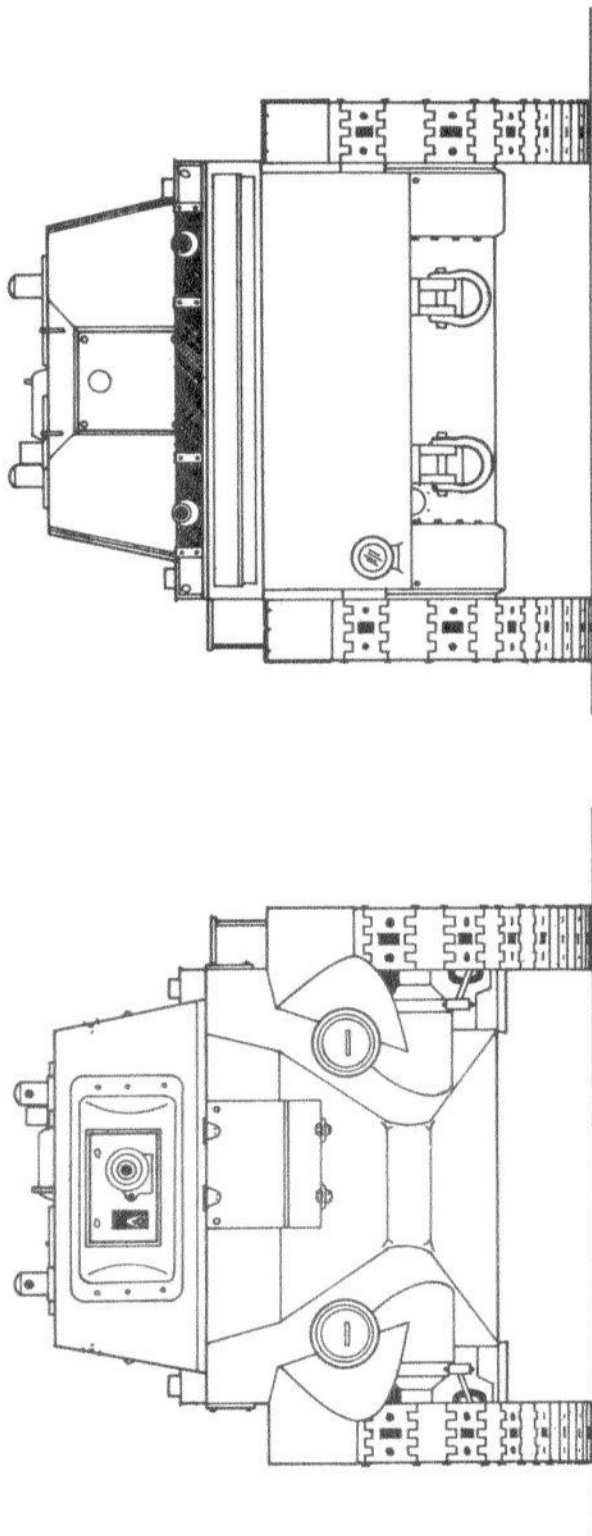
The Russian crews rarely used this option though. One reason was that combat experiences in Spain showed that changing tracks occupied far too much time for the benefits. Another reason was that suspension life was longer with the tracks on rather than off. Why? The rubber on the bogies was quickly worn out when in direct contact with the road, whereas the track shoes would take up much of the abuse. A final reason was that many crews could never adjust to "tooling around" in a 14-ton armored car.

Capable of travelling at 37mph on tracks and armed with the 47mm L/46 gun as main armament, it was considered by many to be an advanced and adaptable design for its period (1933-35). The secondary armament was one coaxial 7.62 machine gun.

Out of the series produced, only the BT-5 and -7 were accepted for use by the Soviet armored forces. Both the BT-5 and -7 participated in limited action in Spain and Finland during the late 1930's and in 1940. It was not until "Operation Barbarosa" that the BT series was eclipsed by other, more contemporary, armored fighting vehicles. Here the thin armor (22mm frontal, 13mm sides, and 15mm turret) proved inadequate. But then one must recall that when originally designed the BT series was to be a fast "breakthrough" tank, and the existing antitank weapons were either in the form of AT rifles or the inadequate 37mm AT gun.

After the front had been stabilized and the T-34 series were in effective strength, many BT's were relegated to training units by the Soviets. This continued until mid-1943, when the Russians started to go back to the offensive. Then an immediate need arose for a better vehicle to suit the reconnaissance role. The requirement was for a fast potent weapon able to traverse any type of terrain quickly. This was due to the Soviet concept of the reconnaissance role. The Soviets used these reconnaissance parties to assault and hold the first enemy line of defense. Then, after Soviet forces were established there, these parties would assault the next line. As can be imagined a healthy amount of "hero of the Soviet Union" awards (equivalent to Britain's Victoria Cross) were presented to such units.

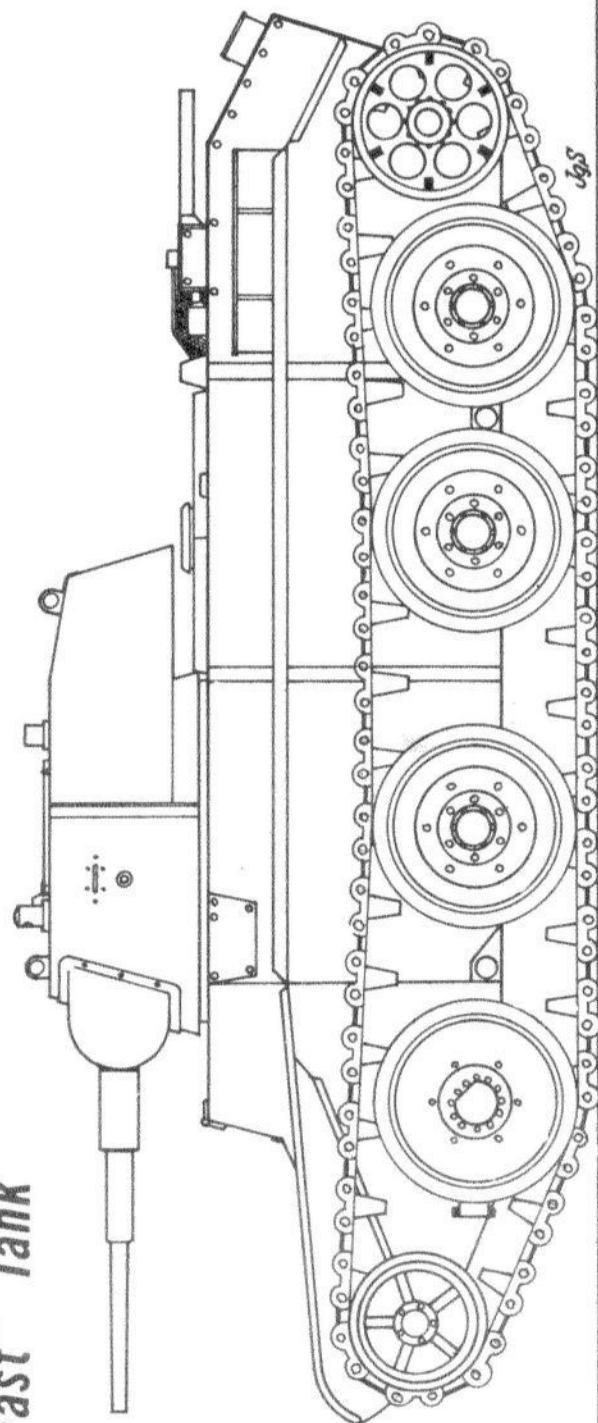
The normal complement of a reconnaissance unit was varied. It was usually composed of four BA-64's, seven or eight BT-7's, or, if not available, lend-lease "Stuarts" or an occasional British "Tetrack". Further fire support was provided by four T-34's. In this way the BT-7 was able to continue in a useful and viable role in Soviet tank forces for ten years. A compliment to a vehicle which had proved to be totally inadequate as a main battle tank in 1941.



Soviet BT-7 "Fast" Tank

drawn by:
J. Steuard

scale: 1/32



In March of 1942, when the first M-3 Medium tanks arrived at Suez from the United States, they were christened Egypt's Last Hope. And so they were. These first Grants, the original 200 purchased by the British Tank Commission and fitted with the special British turret, were assigned to the battered regiments of the 1st and 7th Armoured Divisions then refitting. However, the supply of the new tanks was limited, and only one or two squadrons of Grants were allotted each regiment. A further 250 M-3's, both Grants and Lees, the standard U.S. model, were on their way; but, with Rommel threatening the Gazala Line, there was no time left to wait for them. These late arrivals were therefore used to equip the newly forming armoured units in Egypt. By May there were a total of 12 squadrons of Grants in the forward areas - 3 squadrons with 2nd Armoured Brigade, 3 squadrons with 22nd Armoured Brigade, and 6 squadrons with 4th Armoured Brigade - and a further 18 squadrons in the process of formation - 6 squadrons with 1st Armoured Brigade deployed along the Egyptian border, and 6 squadrons each with 8th and 9th Armoured Brigade forming in the Nile Delta. It should be noted that, while many of these units were at least partially equipped with the Lee version of the M-3; but to the troops in the field, the difference between Lee and Grant remained a matter of American history.

When the British tankers converted to the M-3, they were faced with three major organizational problems: 1) each regiment would have a mixture of at least two types of tanks; 2) the M-3 require a larger crew than did their previous mounts - 6 men as compared to 4 for the Stuart; and 3) with each tank in the squadron equipped with a 75mm gun capable of firing HE shells, the need for specially armed Close Support tanks disappeared. A reorganization of the squadron was necessary, and this was officially promulgated on March 15, 1942, by the Commander Middle East (CRME/26899/SDla, 15 Mar. 1942). Under the new system the largest formation equipped entirely with Grants was the Squadron - consisting of three troops of three Grants each, and a Squadron H.Q. of another three M-3's. This was a cut in tank strength from the usual 16 tank squadron; however, the fire power of the Grant, with both a 75mm and a 37mm gun, more than made up for the fewer numbers. Supply and service functions for the Squadron were concentrated in the regimental "B" Echelon with the notable exception of ammunition lorries. These were the responsibility of the Squadron Sargeant Major who plied between the tanks and the regimental dumps.

During the service life of the Grant with the 8th Army (March through November 1942) some 600 vehicles were issued, of which 350 were lost during the Gazala battles and the heavy fighting around the Alamein position in the summer. The remaining 246 tanks took part in Montgomery's final offensive of October 23rd. The following is a list of units equipped with Grants in the desert campaign:

Regiment:	No. of Grant Sqdns. 27 May 1942	No. of Grant Sqdns. 23 October 1942
1st Bn. Royal Tank Regt.	2	2
3rd Bn. Royal Tank Regt.	2 ("B" & "C")	2
5th Bn. Royal Tank Regt.	2 ("B" & "C")	2
6th Bn. Royal Tank Regt.	2	-
3rd Hussars	2 (Note)	1 ("C")
4th Hussars	2	-
8th Hussars	2 ("A" & "B")	-
9th Lancers	1 ("B")	-
10th Hussars	1 ("C")	-
3rd County of London Yeomanry	1	-
4th County of London Yeomanry	1	1
Nottinghamshire Yeomanry	2 (Note)	2
Staffordshire Yeomanry	2 (Note)	2
Royal Wiltshire Yeomanry	2 (Note)	1
Warwickshire Yeomanry	2 (Note)	1 ("C")
The Bays	1	-
Royal Scots Greys	2 (Note)	1
Royal Gloucestershire Hussars	1	-

Note: These units were forming at the time of the Gazala battles and were cannibalized to provide replacements for 1st and 7th Armoured Divisions.

BRITISH GRANT TANK SQUADRON – MAY 1942

SQUADRON HEADQUARTERS



/ 1st. Lt. SQDN. NAVIGATOR
/ DRIVER
/ GUNNER
/ BOW GUNNER



/ Capt. 2nd. in COMMAND
/ DRIVER
/ GUNNER-75mm
/ LOADER-75mm
/ GUNNER-37mm
/ LOADER-37mm/RADIO OPER.



/ Major SQDN. C.O.
/ DRIVER
/ GUNNER-75mm
/ LOADER-75mm
/ GUNNER-37mm
/ LOADER-37mm/RADIO OPER.

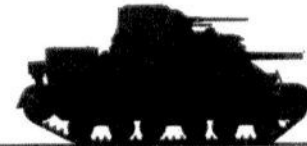
FIRST TROOP



/ TROOP CORPORAL
/ DRIVER
/ GUNNER-75mm
/ LOADER-75mm
/ GUNNER-37mm
/ LOADER-37mm/RADIO OPER.



/ TROOP SERGEANT
/ DRIVER
/ GUNNER-75mm
/ LOADER-75mm
/ GUNNER-37mm
/ LOADER-37mm/RADIO OPER.



/ Lt. TROOP COMMANDER
/ DRIVER
/ GUNNER-75mm
/ LOADER-75mm
/ GUNNER-37mm
/ LOADER-37mm/RADIO OPER.

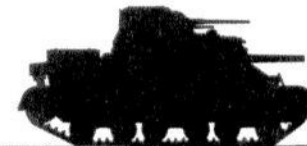
SECOND TROOP



/ TROOP CORPORAL
/ DRIVER
/ GUNNER-75mm
/ LOADER-75mm
/ GUNNER-37mm
/ LOADER-37mm/RADIO OPER.



/ TROOP SERGEANT
/ DRIVER
/ GUNNER-75mm
/ LOADER-75mm
/ GUNNER-37mm
/ LOADER-37mm/RADIO OPER.



/ Lt. TROOP COMMANDER
/ DRIVER
/ GUNNER-75mm
/ LOADER-75mm
/ GUNNER-37mm
/ LOADER-37mm/RADIO OPER.

THIRD TROOP



/ TROOP CORPORAL
/ DRIVER
/ GUNNER-75mm
/ LOADER-75mm
/ GUNNER-37mm
/ LOADER-37mm/RADIO OPER.



/ TROOP SERGEANT
/ DRIVER
/ GUNNER-75mm
/ LOADER-75mm
/ GUNNER-37mm
/ LOADER-37mm/RADIO OPER.



/ Lt. TROOP COMMANDER
/ DRIVER
/ GUNNER-75mm
/ LOADER-75mm
/ GUNNER-37mm
/ LOADER-37mm/RADIO OPER.

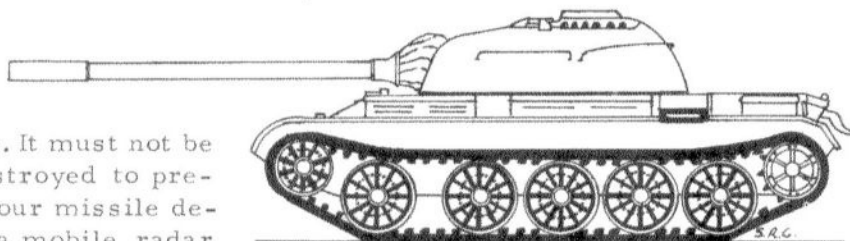
JgS '71

This game is meant to be one that will really keep both players hopping, as it has quite a few surprise elements. It is set in Egypt, 25 miles from the Suez Canal, some time in the future. Aircraft rules as well as those for helicopters will be needed.

Soviet Situation: Your force is moving toward the SAM II missile site near Iseris. You are escorting a camouflaged missile carrier of the SCUD-1 type plus secret electronic equipment in a 6 ton truck to the missile site. The Egyptian government and armed forces have not been informed that we have introduced a guided missile into Egypt.

The U.N. truce is still in effect as extended by the UAR. The missile is being introduced to prevent Israeli aggression by threatening their country. It does not have a nuclear warhead but the potential threat of using one is felt to be sufficient to stop the Israelis should hostilities commence.

Your objective is to prevent any Egyptian army units from obtaining the electronics gear and missile. The electronics gear is of prime importance. It must not be allowed to be captured nor can it be destroyed to prevent its capture as it is too valuable to our missile defense. The missile is camouflaged as a mobile radar unit, and this is to be used as your (to use an American expression) cover if you should encounter Egyptian forces: Your unit is escorting a mobile radar unit to the SAM site to increase the war defenses.



You have a time limit of 15 turns to complete this phase of the operation, and you must cross this sector of the travel route (the game board) in this time.

Soviet Forces: 2 PT-76 tanks, 4 T62 MBT, 1 SCUD-1 missile and carrier, 1 6 ton truck, 1 BTR-40 command vehicle, 4 BTR-50 APC with 40 men and 4 RPG40, 1 BTR-60 APC with 17 men and 1 RPG40, and 2 SU-57(2) AA tanks.

Israeli Situation: Intelligence has obtained evidence that the Russians have a nuclear warhead and a missile in the Middle East. It is being moved by an armed convoy close to the Suez Canal.

The enemy force consists of the missile and carrier (SCUD-1), a 6 ton truck believed to be carrying the atomic warhead, 2 PT-76 tanks, 4 T62 tanks, 1 BTR-40, 4 BTR-50, 1 BTR-60, 2 SU-57(2), and 50 to 70 infantrymen.

Your objective is: 1) Capture the nuclear warhead and obtain photographic proof of its existence; 2) Capture the SCUD-1 and obtain photographic proof of its existence; 3) Get the warhead out of Egypt and back to Israel; 4) Bring the SCUD missile back to Israel.

Time Limit: Only 10 minutes (10 turns) of total air superiority can be guaranteed over the ambush area.

Israeli Forces: 1) Air Cover: 6 flights of Mirage FB (3 planes per flight) plus air cover. The Mirages are armed as follows: Flight No. 1, 20 600lb bombs; Flight No. 2, 20 600lb bombs; Flight No. 3, 2 Napalm tanks, and 4 600 lb. bombs; Flight No. 4, same as No. 3; Flight No. 5, same as No. 3; Flight No. 6, 10 1100 lb. bombs. 2) Attack Force; 1 "Flying Crane" copter to carry missile, and camera team #2; 4 Huey 1B troop carriers with a squad each consisting of 7 men with 1 AT rifle grenadier per squad, the rest with SMG; 3) Support and Command Force; 1 Huey with a Force Commander, NCO, and radioman, missile expert, nuclear weapons expert (Swiss), 2 man camera team #1, 2 Hueys with your choice of the following: 1) 1 additional squad per helicopter as in the Attack Force shown above; 2) 1 anti-tank unit per Helicopter consisting of 1 90mm RR team and 1 LMG team per unit; 3) 1 anti-tank unit of 1 106mm RR per helicopter; or, 4) 4 SSII missiles per helicopter.

Actual Situation: The truck contains the nuclear warhead for the SCUD missile. The Soviet hopes to blackmail the Israelis with it. Unknown to the Soviet commander the Israelis know about the Soviet convoy and what it is carrying. The judge should stress the idea of a Soviet - Egyptian confrontation.

Israeli forces may have Mirage hit SU forces before Huey arrive. Time for aircraft to get to target from Israeli territory is: jets-- 0 turns, Huey and other copters--2 turns. If Israeli forces do not capture warhead and it is destroyed they lose from world opinion. Israeli forces must do more than just wipe out SU forces.

Soviet and Egyptian air reaction: 3 turns after jets pass border (Suez Canal) 1 Mirage is shot down. Three Mirages are forced to jettison their armament with no damage to Soviet forces and provide close air support against Soviet jets. If 3 Mirages already have jettisoned or used their armament they may provide the support.

22. Terrain and fortifications will be part of the wargame at the discretion of the referee. Escarpments and depressions shown on the A-H board will be represented on the wargame board.

The system is complex, but it works. You will find wargaming takes on new meaning when each wargame is only a part of the over-all campaign. Total victory in a wargame will often be too costly. The system is also interesting in that it leads to many varied wargame situations. These are often uneven and you must salvage what you can for later use.

Part II will include rules on supply, use of enemy vehicles and order of battle

Chongju Roadblock (Continued from Page 23)

As the smoke cleared, the tankers saw the blazing remains of the self-propelled gun which had hidden beside the first T-34. The SP had been guarding the other end of the pass. When the Shermans attacked, it moved up the pass using the smoke from the burning T-34s as camouflage.

The weary men of the 89th took a short break; the road to Chongju was open.

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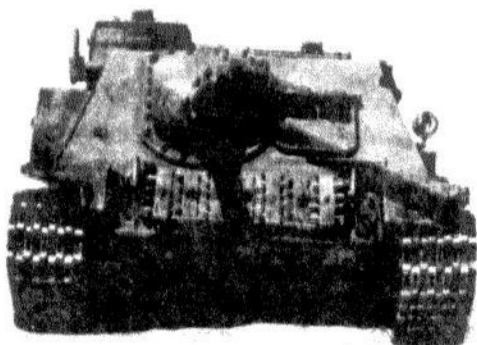
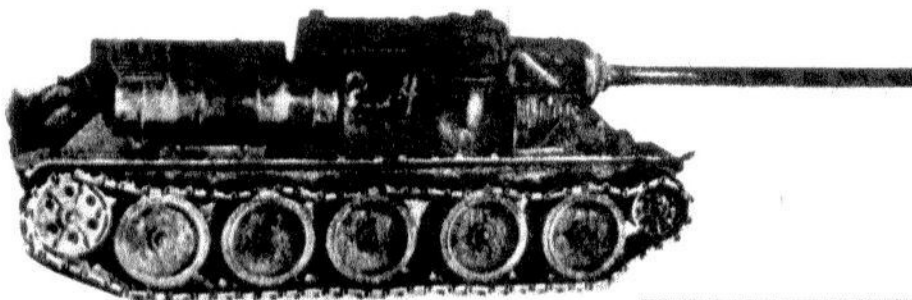
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